COMPUTER WEEKLY

NEWS IN BRIEF

Norsk wins USAF contract

THE contract to supply minicomputers for the US F16 fighter simulator has been won by Norsk Dato of Norway (CW, November 10). Under an $8 million contract the minis will be supplied to Singer's Marine and Aerospace Division, which is building 18 simulators, each with four Nord 50 32-bit processors and a Nord 10/S front-end.

The contract went to Norsk Data because the company is the only one with a 32-bit mini capable of running under the same operating software as the 16-bit front-end mini.That operating system is Norsk Data's Sintran III.

Philips launch

TWO small business computers, the 330 and the 430, have been announced by Philips in the US. They have not yet been announced in Europe.

Delivery stage

A CONTROVERSIAL computer order has reached the delivery stage with the installation of a Honeywell Level 66 at the Huntingdon headquarters of the authority ordered the system after a year of wavering between Honeywell and ICL (CW, April 28).

Train death

THE inquest on Warwick University computer science lecturer Ronald Footitt, 30 of Whitnash, Leamington Spa, was adjourned until a date to be fixed. His body was found south of Kilsby tunnel, Northants, on the main Euston-Birmingham railway line. He leaves a wife and a young son.

'Plan now for the future impact of technology' call

THE need to plan for the future impact of technology before it is too late was emphasised last week by Earl Joseph, staff scientist and futurologist at Univac, and consultant Iann Barron.

Speaking at an Infotech seminar entitled "Planning for Tomorrow's Technologies," Joseph highlighted education, health services and the effect on work styles as three areas where information technology will have a major impact, while Barron reiterated his Hedsor Park call for a Minister of Information Technology.

"What about a hospital-less health system?" he said. "We could have a personalised computer wristwatch that can take your pulse and monitor and release chemicals into your bloodstream. We already know how to do that."

In the past, major technological changes and their impact on society did not happen quickly, but Joseph believes that this is no longer the case. He sees the rapid changes in

munications satellites in the house, and the cost will be significantly less than it is at the moment.

"Also, there is the possibility of having robotic teachers. We know enough to do that, but we now have to create the software. What would it matter if the teacher was a 3D image, like a hologram?"

Joseph also looked to the future to supply personalised, wearable computing machines.

"Schools are very slow to implement new ideas," Joseph said. "One of the high risk routes for them to follow in the future is to assume that education will be delivered the same way as it is today. But you do not need to teach in a school building.

"Instead you can set up a system through com-

society, observable in our own lifetime, as a real turning point.

The need to prepare for rapid technological changes was the main theme of Iann Barron's talk.

"We must have policies before decisions are taken — or are made for us," said Barron, in calling for the development of national policies to cover the whole range of social, economic, political and industrial areas affected by the impact of information technology.

He also said that the "call for action" for the development of such policies which followed the ACM/Computer Weekly conference "Can computers save Britain?" (CW, July 14) should be headed by the computer community and that the action should not be delayed too long — or it might be too late.

● A team of forecasters at the Henley Research Centre has

Earl Joseph . . . possibility of robotic teachers.

produced a report called "2002: Britain Plus 25"* which looks to the future shape of society, including the effects of the computer / communications revolution.

It predicts that the average household of the future will rely on computer-based appliances.

*2002: Britain Plus 25, The Henley Centre for Forecasting, 22 St John's Square, London, pp184, £30 or £25 to subscribers.

Questions about IBM top lawyer

From Hesh Wiener in New York

EVIDENCE has emerged in the US that Nicholas Katzenbach, IBM's general counsel and vice-president of the corporation, was informed of the investigation that led to the US government's anti-trust suit against IBM as early as 1968, over four years before the US government actually filed its suit.

At the time he was made aware of the investigation, Katzenbach was Deputy Attorney General of the US.

Evidence that Katzenbach was alerted to the investigation is a memo sent to him by William H. Orrick, who was head of the Justice Department's Anti-trust Division.

Existence of the Orrick sheds new light on the recurrent question of Katzenbach's possible conflict of interest, a conflict that the attorney has evidently not specifically denied.

Any proven conflict could be violation of the code of legal ethics and US law. It could interfere with the conduct of the government's anti-trust suit which is now in pre-trial litigation.
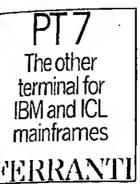
Complicating Katzenbach situation is the relative statement, issued through IBM spokesman, that IBM approached Katzenbach to work for the corporation in November, 1964. Katzenbach finally joined IBM in June 1969, within days of the filing of the government anti-trust suit.

Brian Long to take over at Honeywell

A MAJOR reorganisation of Honeywell's UK business has director Russ Henderson, Brian Long will take over as managing director when Henderson returns to the US in the second half of 1978.

Long has been appointed deputy managing director in the interim, and his elevation will honour Henderson's commitment when he arrived last January to name a Briton as his successor.

The UK company has been restructured along product rather than geographic lines, and sales and support staff will be much more specialised than

Long . . . to be managing director.

previously in terms of product.

The new Data Processing Division embraces Level 66 and the whole of the Xerox base of 40 customers. The General Systems Division takes in Level 64, Level 62 and the small amount of business still done on Level 61. The Minicomputer-Terminals Division covers Level 6 and the terminal business.

It is planned to run Incoterm independently to start with, once the acquisition is complete. The UK Incoterm company has about 75 people, mainly in sales.

Backing up his belief that the decision to build Level 66 in France would not adversely affect the large systems factory at Newhouse, Scotland, Henderson told Computer Weekly that of the 50 to 55 Level 66 machines built at Newhouse in the current year, only 10 or 12 had gone to CII-HB. "The remainder have gone to the UK, Italian and subsidiary markets like Iran and Yugoslavia," he said.

"We are likely to make a firm decision to build Level 6 minis at Newhouse next year, and I don't think that the French decision will have any effect on output from the Scottish factory for the rest of the life of Level 66."

The successor line to Level 66 is likely to begin appearing in the early 1980s.

Honeywell's UK business is now over £50 million a year, and the plan is to double this in four years.

Honeywell has put in for a Queen's Award for export achievement.

500 reply to Cobol survey

A GOOD response has been reported by the National Computing Centre to its efforts to obtain a picture of Cobol use in the UK, on behalf of the EEC.

Out of 2,000 questionnaires on Cobol use sent out to installations, over 500 have already been returned.

The survey is being organised by a sub-group of the EEC's working group on standards, which is investigating the need for Cobol standardisation and the problems of portability.

The questionnaire has already been circulated in France, West Germany and the Republic of Ireland.

Series 1 net for food group

A MAJOR IBM user, International Stores, is to install a network of five IBM Series 1s, attached to its central IBM 370/145 at Swanley, Kent. Altergolass been contracted to write the software for at least the initial order processing system.

The Series 1s will be installed at the company's five major

warehouses, which supply most goods to their local retail outlets.

Under the initial system, orders from the branches will be input to the appropriate Series 1, which will issue a picking note, aiding warehouse staff to collect the stock, and a charging note to the retailer. The alteration in the stock at that depot will also be recorded.

Number 578   Thursday, December 1, 1977   Price 18p

Briefing

Cossor wins Lords order

THE House of Lords library has placed a £60,000 order for a Raytheon Cossor PTS 1020 terminal system for use in extension of the library's print information retrieval project.

The terminals will be used in accessing information such as registers of procedural precedents and titles of Acts of Parliament. The seven-terminal system will be installed during the Christmas recess, and will be linked to an IBM 370/158 at the Greater London Council, which is now negotiating an extension to a one-year contract for providing the Lords with computer power (CW, March 11, 1976).

IBM prices up

RENTAL and lease prices in the US for some older IBM products will go up by about 5% in the spring. An IBM spokesman could not say at this stage whether the increases will also apply in Europe and the UK. Products affected include System 32, System 7 and some models of the System 3 range.

First bubbles

US sources suggest that the first IBM computers incorporating bubble memory will be the System 36 and System 38 scheduled for introduction early next year as replacements for the System 3/12 and 3/15. They will be developments of the System 34 transaction processing system.

Takeover

A LEADING US manufacturer of video based word processing systems, the Lexitron Corp of Chatsworth, California, is being acquired by the Raytheon Company. US parent of Raytheon Cossor. The UK firm is unable to say yet when it will start selling Lexitron products in Europe.

'Amicable' split

COMPELEC Electronics' managing director, Martin Underwood, has quit, in-split that has been termed "amicable." His 22 per cent stake in the company has been purchased by the majority shareholders. Roderick Verslius has taken over as acting managing director, until a full-time successor is appointed.

32-bit challengers

FOLLOWING the announcement of the VAX-11/780 by Digital Equipment (CW, October 27), Data General is expected to bring out its own 32-bit challenge early next year. At about the same time, the established 32-bit mini builder, Systems Engineering Laboratories, will launch a range of 32-bit machines priced significantly below existing models.

Norwegian net

DESIGN of IBM Series 1 software for International Stores (CW, November 24) is not the first Series 1 project gained by Altergo. The consultancy is already working on a Series 1 word-processing network for an unnamed user in Norway.

Cautiously Prince Charles tries his hand with a light pen on a graphics terminal linked to the IBM 370/158 at Lloyds Register of Shipping. During his visit to Lloyds the Prince experimented with the interactive graphics system which is used for appraising ship structures. With the light pen a surveyor can make changes to a three-dimensional display of a plan which can be shown in any plane.

Plato to aid South African blacks

DESPITE a corporate decision to suspend new investment in South Africa, Control Data is planning to set up its Plato computer assisted instruction system there as a training service for blacks, and subsidised by the South African Government and industry.

CDC is currently sounding out government, businesses and church organisations in South Africa about the possibility of funding the project on a consortium basis. After 18 months talking there has been a general expression of interest by the South African government but no firm commitment, according to Control Data vice-

president Roger Wheeler.

"The prime aim would be remedial and skill training for blacks," said Wheeler. "The service would be available to businesses, too, but this would be a secondary activity and revenue from it would help subsidise the primary service."

If it pays a commitment Control Data will install a mainframe in South Africa to support the Plato system.

Otherwise Control Data has announced that it will "not enlarge its holdings" in South Africa because of the government's clampdown on black newspapers and black leaders.

£50m boost for micro industry

By Martin Banks

THE Department of Industry will announce proposals early in the New Year for investing a total of £50 million in the British microelectronics industry over the next five years. A number of investment programmes are being considered but the final details will not be decided for a few months, although the DoI is keen to act quickly to stave off competition from similar European investment programmes.

Though the policy has not been finalised, it is clear that one of its probable results would be increased pressure for bringing together the microelectronics activities of the three main British beneficiaries of such support: Plessey, Ferranti and GEC Semiconductors.

For it is likely that the DoI will seek close cooperation between any companies in which money is invested.

Two main programmes are under consideration.

The first, thought by the DoI to be the more urgent, will cover both the manufacturing and applications of microelectronics and large-scale integration technologies in the UK. Both indigenous and foreign-owned companies will be eligible, the main criterion being that an investment makes Industrial sense.

The second programme will take a broad approach to the application of microprocessors and microcomputers.

The need for urgency that the Department must feel can be gauged from the recent investments announced by the French and German governments for similar support programmes. Each country is prepared to spend an equivalent of £50 million over five years.

The DoI spokesman stated that its own programs would be comparable to these. It seems probable, however, that the actual support will be less than this, as the Department has already committed considerable

sums to microelectronics as part of the £20 million support scheme for the total electronic components industry, announced earlier this year. The final total is likely to include this sum.

As the details of the programmes have still to be finalised and cleared, it is not yet certain whether they will follow the same pattern as its earlier support, requiring any company seeking an investment to put in at least the same amount again. The spokesman said that the Department recognised the fact that the industry could have problems in finding its share, so the degree of partial funding had still to be decided.

In the microcomputer field, Plessey is centring its operations

CRC chiefs resign

TWO of the top men in the CRC Group, managing director Barry Quirke, and his deputy, Rod Pearson, have resigned from the company following a board meeting on November 22.

Earlier this year CRC was taken over by the giant French bureau, Générale de Service Informatique (CW, June 9). A statement from the company said that GSI disagreed with Quirke and Pearson's style of management.

The men taking over as man-

aging director of CRC is Ian Auld, one of the original directors of the Honeywell time sharing service in the UK. For the last four years he has been working in the United States, for most of the time as vice-president marketing and sales with the Rapidata time sharing bureau.

CRC's time sharing bureau service, Cybernet, is used all over the UK and also on the Continent via nodes in Paris and Frankfurt.

New Japan challenge to IBM

ANOTHER Japanese mainframe manufacturer is seeking to enter the US market with IBM-plug-compatible CPUs. A spokesman for OPM Leasing Services of New York confirmed to Computer Weekly that OPM is talking with a Japanese manufacturer but declined to name it.

Only Fujitsu and Hitachi build CPUs similar to IBM's 370 line.

Hitachi supplies Itel; and Fujitsu is linked with Amdahl.

A Fujitsu spokesman in California conceded on the possibility that his company might find other US outlets for the machines it builds below the level of Amdahl's 470V/6.

Nippon Electric has also been named as a possible new contender for the market.

OFFICE VIEW
There is much speculation about the office of the future and electronic systems that it will contain. One system that is likely to play a prominent role is Viewdata, the information service developed by the Post Office. Sam Fedida, of the corporation's computer research applications division, describes the services that could be provided.
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MACHINE VICTORY
We may have a long way to go yet before we get to the era of thinking machines, but some steady progress

grass has been made in the world of computer chess. In Seattle in October, International Master David Levy was beaten by CHESS 4.6, and by DUCHESS. In a giant Chessbox Danny Kopec reports.
Page 14

THE DATA COLLECTION
The growing collection of data about people to serve the alleged needs of complex modern society presents many dangers to the individual. Patricia Hewitt, of the National Council for Civil Liberties, looks at what she calls the threat of privacy.
Page 4

ALSO...

370 connection
AN interactive graphics system for connection to its 370 mainframes has been announced by IBM. Called the 3250, a system with four display stations would cost about £130,500. First shipments are due in the last quarter of 1978.

COMPUTERVIEW

Neddy fiddles while British software burns

POLITICIANS, civil servants, union officials, city financiers, businessmen and others who have their hands on the levers of power prefer simplicity to subtlety.

They seem to understand only the simplest of equations. Like the fact that hardware production, be it of motor cars or computers, equals more employment, equals increased prosperity. Hardware is tangible and easy to understand, but it is far more difficult to get to grips with concepts like software or knowledge industries.

Last week, Computer Weekly revealed that some of the discussions of the manpower subcommittee of the Neddy computer sector working party actually involved criticisms from some quarters of the British services industry — because systems houses are doing too much work on foreign machines.

Fortunately, there has been sufficient opposition to some of the more extreme suggestions discussed by the sub-committee to water down the criticisms before the report is made public.

Yet the mere fact that this type of discussion can take place on a body aimed at boosting the British computer industry is a sign of the trouble that we are in.

The work of the manpower sub-committee in fact highlights the sorry state of any national policy towards information technology.

Neddy is just one of a number of bodies involved in some way or other in looking at the information technology industry. Other bodies include the Department of Industry; Science Research Council; National Committee on Computer Networks; Computers, Systems and Electronics Requirements Board; National Enterprise Board; etc.

Some of the work of some of these bodies is far-sighted and relevant. The Neddy manpower sub-committee, for example, will be making some valuable recommendations regarding investment in training and developing computing manpower.

The lack of co-ordination between these groups, however, means that even the good work is dissipated while the strong political forces — nationalism, protectionism, short-term mass job preservation, etc — can play an unduly prominent role in final decision-making.

At the Hedsor Park conference (CW, July 14), one of the strongest messages to emerge was the call for a policy — any policy — towards the information technology industry and the impact of information technology on society.

However, the disarray of the current situation was illustrated recently when the government ignored Neddy's advice to extend its procurement policy to include minicomputers (CW, August 4).

The government explicitly excludes machines smaller than the ICL 2960 from preferential procurement. Coupled with the tight constraints on public expenditure, this policy is now stimulating the move away from ICL mainframes at some universities, although ICL, at present is the only hardware company receiving any official "protection".

It is becoming increasingly urgent that sensible national policies are developed for the information technology industry. And such policies must go beyond anything that seems to be in the government pipeline at present, such as the support for the microelectronics industry (front page).

The policies should relate to a clear-sighted perception of the future and open-minded understanding of the technological and social realities of today.

Of course, these policies should include support for British industry and British manpower. But such support should include a strong bias to assisting those areas in which we have a worldwide lead, such as software and systems expertise, and to the stimulation of the advanced use of computing.

An inevitable by-product of this type of policy would be the growth of British-based manufacturing, support and service facilities by both British and "foreign" manufacturers.

Specific support for British-owned companies should be a part of the policy, either in the form of specifically funded projects or limited development contracts. Any attempt to provide a more protected home market, however, would be counter-productive.

Becoming a worldwide manufacturing company inevitably means establishing manufacturing and support centres outside the UK. ICL, for example, will only be taken seriously as a European company when it starts making systems on the other side of the channel. But British unions allow that?

For software companies, expansion now means growth outside Britain, and that growth inevitably means the export of British people, many of whom may never return.

That is why the document circulating at the Neddy manpower sub-committee criticising the "foreign" orientation of the British software business is so misconceived.

It is a fact of computing life that US-owned companies rule the hardware world. Even the American computer industry, because systems are making IBM lookalikes.

Britain, however, could have a unique and powerful world role in software. It has the combination of high quality people and the right native language.

There are already a large number of British software exiles throughout the world — people who say, "I would prefer to live in Britain but . . ."

In terms of quantity, this number is small compared to the manufacturing workforce. In terms of importance, however, they represent the draining of our computing life force.

Ten years ago...

**COMPUTER WEEKLY
NOVEMBER 30, 1967**

PRIME Minister Harold Wilson claimed that the Labour government had saved the big computer industry last year out to the Americans, would have happened, he declared, after "a few more years of Tory rule" . . . Japan is lagging 10 years behind us in the utilisation of computers according to the Japan Post Thirty Centre . . . At the same time, the Sumitomo Bank is setting up a major order taking installation which would consist of nine NCR 315 terminals . . . Lack of skilled projects, rather than lack of money, was limiting the advanced Computer Technology Projects schemes, said Mr J. Tha industry's lack of staff and money to support the projects was also a problem.

FOCUS
on people & DP management

DATA processing management

DATA processing management is among the best established when it comes to costing exercises. In fact the average DPM has few equals when it comes to whiling away the hours closeted with a desk calculator and sundry manufacturers' specification lists.

While other company managers relish their Pirelli calendars, the DPM prefers his dates unadulterated. The BASF graphics or Computer World Trade designs are deviation enough. When it comes to evaluating between display units or software packages, the DPM normally has more than sufficient statistics to hand.

It could, however, be that this dedication to DP facts and figures has unfortunate repercussions. While he may be well versed in negotiating financial leases, site insurance and operational budgets, he has overlooked his own fortunes. When it comes to organising his own pay, the DPM is in the also-ran class. Not only is he running a losing race with non DP management; he is even trailing in the DP field.

Recent highly relevant figures produced by the ever faithful and diligent Computer Users' Year Book should have made DPMs look up from their slide-rules. It did not take much reading between the lines to get the pay message. Salary increases over the past five years show that the average computer operator is top of the league, with 172%, and bottom of the table at 78% is the DP manager.

To emphasise the decline and near relegation of the DPM, CUYB points out that in 1972, a DPM on average earned over three times as much as a computer operator. This year he now receives twice the pay of an operator.

Given similar rate of deflation, the DPM now can confidently expect to be overtaken in the not too distant future by the rest of his team.

If this is the case — and the CUYB survey covered 1,200 installations involving over 22,000 employees — the DPM should be devoting some evaluation time to his own future, or perhaps apply for the next Honeywell operators training course.

Meanwhile, reports from the US suggest a very different pattern of pay. The average Weber salary survey for DP (until June this year) suggests that while the average increase for installation was 5.4%, that for DP management soared to 11% — a way can fill US DP responsible for jumbo-supercomputers. Maybe company management in US is more enlightened than its UK counterpart.

Or maybe UK DP gets what they deserve — much dedication to grey evaluation rather than the challenge and adventure, making a few decisions to keep up with the times.

Three-second X-ray scanner from EMI

A NEW computerised medical X-ray scanner is being introduced in the US this week by the world leader in the field, EMI. The new model 7000 uses a scanning technique different from the company's 5005 and 1010 scanners and reduces the scanning time from 20 to three seconds.

The 7000 was developed by EMI's US subsidiary, EMI Medical Inc. It is being shown to the medical world at the Radiological Society of North America exhibition in Chicago.

Like the 5005 general purpose body scanner and the 1010 brain scanner, the 7000 incorporates a Data General minicomputer. It costs $150,000 more than the earlier models.

At the same exhibition, EMI is introducing a radiotherapy system, the EMI-Six, also developed in the US. It incorporates a Digital Equipment PDP-8 minicomputer which accepts treatment parameters and monitors the treatment programme against those parameters.

Bearing in mind criticisms of hospitals which buy expensive scanners before their practical value has been fully proved, EMI is now promoting the idea of a shared scanning service, with self-contained scanning systems mounted on lorries and moving between hospitals.

EMI has received a £2.5 million order from Japan, its second biggest scanner market. The order, for 5005 and 1010 scanners, is from the company's Japanese distributor, Toshiba. EMI has now had 149 orders from Japan and over 500 from the US.

In total the company has received over 850 orders worth £180 million.

£1m order for more postcode translators

FOUR postcode translators have now been delivered by Sperry Gyroscope for use in the Post Office's Mechanised Letter Offices, and the company has received a further £1 million contract for nine more.

The translator consists of a minicomputer and associated electronics linked to a Sperry magnetic drum on which is stored a dictionary of postcodes. The operator types in the postcode, this is checked against the drum dictionary and the appropriate code of phosper dots is printed on the letter. At the receiving mechanised office, a reverse process causes the letters to be sorted into delivery districts.

The translators are built by Sperry at Plymouth. The minis are Hewlett-Packard 21MX machines. For the next generation of sorting equipment, the Post Office is considering systems using micros rather than minis, and an alternative storage technology, likely to be solid state, rather than magnetic drums.

Midland orders Arbat Swift system

A BREAKTHROUGH into the major league of UK clearing banks has been made by City-based systems house Arbat.

The Midland Bank has ordered the Arbat Swift interface system for its international division currently equipped with Burroughs' B7 S10.

The new system will run on twin Digital Equipment PDP-11/60 minis, each with 96K-words of store. The minis will be supplied by Arbat along with its own proprietary AIMS operating system and software.

The 11/60s will interface with Midland Bank International's two IBM 370/145 mainframes, using IBM 3270 terminal emulation.

A Midland spokesman told Computer Weekly that the Arbat systems would replace the B7 S1Ds, and that it was chosen because it was available immediately.

Arbat, which has supplied Swift solutions for US banks including Security Pacific in New York and Chemical Bank at several European locations, believes that several major banks are looking for second generation high-capacity Swift access systems, and that the immediate availability of the Swift solution puts Arbat in a strong position.

Micos APT to ease programming

AIMING to ease programming for its minicomputer-based Micos system (CW, July 21), MiniComputer Systems has brought to the UK a program generator which, it claims, will handle as much as 80 per cent of the programming of a typical business installation.

Known collectively as Application Programming Tools, the software comprises three modules handling data entry and validation, file management and report generation.

The APT programs require parameter entries describing, for example, validation criteria, file and report structures and the ways in which record fields are to be altered. The software then generates programs in MCS' Extensive Basic language.

File management includes matching of records from different files and changing of specified fields within records. Both sequential and indexed files are handled.

The report generation module. Request, has its own database-like view of the collection of files, allowing data for a report to be collated from several files without the end user being aware of their physical separation.

When the Basic programs have been generated, the user can amend them, either by editing the generated code or by inserting branches to separate user-written Basic modules. To assist with such tailoring, each part of the generated program is assigned a particular range of line numbers.

The user may tailor not only the generated programs, but the generator itself, which is also written in Basic. MCS supplies the specification for the system to ease such amendments.

For example, said an MCS spokesman, the standard package provides for 16 validation criteria for data entry and given the specification, the user can easily change the package.

APT is already being used by CAP in its work with the Micos system for the House of Fraser, and by MCS itself, notably in the set-up of its £1 million network of Micos machines for Shell.

Laur Punter complaint 'test of CSA code'

PROCEEDINGS initiated by Laur Punter against fellow consultancy Wellorax under the Computing Services Association's code of conduct are continuing, despite the former company's liquidation (CW, November 24).

"By the book, Laur Punter has ceased to be a member of the CSA," said a CSA spokesman handling the case, "but we felt we ought to exhaust the lines of investigation which we had already started."

Apart from the merits of the particular case, the continuation would act as a test of CSA procedures.

"We want to see whether we should, in future, take a different line with complaints of this nature," he told Computer Weekly.

Laur Punter's complaint alleges unprofessional conduct by Wellorax over the failed merger negotiations between the two companies (CW, April 21).

The liquidation has not created any appreciable difficulty in proceeding with the complaint, said the spokesman. "We are talking to individuals, rather than companies."

NRDC's software policy

THE National Research Development Corp regards systems and software product development as an important field of technological innovation.

Speaking at a Computing Services Association lunch last week, NRDC managing director William Makinson said, "We are ready and willing to consider propositions from software companies." He emphasised that the NRDC would not take risks unilaterally but would demand a serious financial commitment from its partner in any joint venture. However, the corporation's financial participation could exceed 50%. This would depend on the product and the size of the company.

NRDC aimed to make a profit from all joint developments and could operate only if both sides were determined to make money. Market potential, he said, had to be clearly demonstrated and companies should not expect an easy ride.

DOWNTIME
by chad

Computers of the Gods?

THE speculations of Erich von Däniken on one hand and our own "Liveware Saga" on the other may have led our readers to wonder whether ancient civilisations knew more about computing than we do. A Mexican civil engineer claims to have uncovered evidence that the Aztecs did have such knowledge.

David Esparza Hidalgo says that his search entailed a long period of associating with the local Indians, "gaining their confidence" (shades of Carlos Castaneda).

Eventually an old Indian told him of a computing instrument called a "kipotl", the design of which had been passed down from the Aztecs.

The kipotl is evidently a smaller, simpler version of a full-size computer called a "nepohualtzintzin". Don't laugh, it's shorter than "three-seventy-one-five-eight".

Unfortunately, we have no details of what a "nepohualtzintzin" looked like. Our informant has, however, given us a brief description of a kipotl, from which it sounds not greatly different from an abacus of the Chinese pattern.

"Its biggest advantage", says Mr Esparza, "is that the person operating it has to reason." I know some programmers who would regard that as something of a disadvantage.

I began to be auspicious of Castaneda's Indian "guide" when he started sewing up lizards' eyelids to help Castaneda on his mystical drug experiences. I can't help feeling that the most ancient tradition of the South American Indians is called "pulling the leg of the foreigner".

Nevertheless, the Mexican Foreign Trade Institute has taken the "computers" at face value, and plans to export them. Watch out, IBM!

Pithy quiz-kids

OUR Champagne Competition at Compec, of which the winner was announced last week (CW, November 24), attracted a wide range of entries and some ingenious badge slogans.

Indeed, several competitors produced efforts which we felt deserved special runners-up awards — the first five win £2 for their slogans, and the sixth £3 for his original answers to the picture quiz.

Alan Ferguson, a technical consultant of Chingford, London, suggested, "HAL WAS ONE AHEAD OF IBM", which should please Arthur Clarke, and S. K. Collins, of Hayes, Middlesex, was pointedly brief: "LAYTE".

Frank Smith, a scientific officer of London, appealed "STOP IT — YOU'RE TICKLING MY OODTSTRAPS", possibly, though I hope not, in response to the come-on from John Long, a senior programmer from Leicester: "LET'S GET OUR BITS TOGETHER!"

More gnomic was Keith Diment, a systems consultant from Wantage, Oxfordshire, who declared, "I'M HEXY. FIVE FIVES ARE NINETEEN."

Wrong, but prize-winning, answers to the picture quiz were submitted by S. F. Desmond, a systems analyst from Reading: (a) Uncompleted architect's model, Leaning Tower of Pisa (actually reels of mag tape); (b) University College Hospital, ophthalmic dissecting jig (operator's eye view of a disc pack); (c) Set of wooden exchequer tallies, c. 1830, HM Treasury (well, no: it was a microfiche); and (d) Debris after Grandmasters' draughts marathon (in fact it was chad from paper tape, cunningly disguised by printing the photo as a negative).

I think you all did very well.

Dial-a-spiel

FIRST the bad news. Considerable dismay has been expressed in the US over the operation of a new threat to civilisation as we know it, the robot telephone advertiser. This machine, once fed a list of telephone numbers, proceeds to dial all by itself, doggedly plodding through an entire exchange.

When someone answers its call, it delivers a taped advertising spiel, records any response, and hangs up. In what is described as a good day, it can notch up 1,000 calls.

After a Florida firm, Digital Products Corp, started selling the automatic dialler in June, the prospect of junk telephone calls adding to the pollution of junk mail proved too much for one recipient, a physicist called Walter Baer, who petitioned the Federal Communications Commission for relief. Then the White House Office of Telecommunications Policy, no less, urged the FCC to conduct a full inquiry into all phone advertising, and bills to restrict the new devices were introduced in the House and the Senate.

The good news? The last I heard, Digital Products Corp had sold only 45 diallers, and a rival company (also set up a few months ago) had managed to sell but one.

Well, I'm buffered . . .

IT'S an ill wind, they say, that blows nobody any good. Opportunist of the year award goes to one of the Xerox whiz-kids under Shai Kice who helped develop the highly regarded Xerox CP-V operating system. When Xerox pulled out of the business in 1975, he did a PhD at the University of California at Los Angeles.

His subject: how the Xerox closure affected the community of El Segundo. He now works for Systems Engineering Laboratories, the Fort Lauderdale, Florida-based high technology minimaker.

Danger of the secret invasion of privacy

Public faith in computerised databanks is unlikely to be enhanced by the abuse of legitimate security needs to withhold information of general public concern, writes PATRICIA HEWITT of the National Council for Civil Liberties in "Computers and society: Electronic friend or foe", from which this extract is taken. Other contributors to the volume, which is to be published this month by Input Two-Nina, of Purley, Surrey, as part of the Current Aspects of Computer Technology series at £9.95, include Anthony C. Clarke, David Firnberg, Dr Chris Evans, Prof John Berton and others, leading figures in the industry, and is edited by Alan Simpson.

"POWER may come out of the barrel of a gun, but for more power comes out of a computer or databank, particularly if the information in it relates to people who do not know that it has been collected or cannot challenge its accuracy or use."

The flourishing personal information industry is an essential part of complex social structures. A credit-based economy needs credit reference agencies. The personal social services system — under increasing pressure to prevent family tragedies — accumulates more and more information about its "clients" and tries to devise exhaustive procedures for sharing its data with all the other caring and legal services.

Informal notes collected by teachers have been replaced by standard assessment cards. The financial support system — social security, supplementary benefits, family income supplement, child benefits and a host of local means-tested benefits — cannot function without millions of files, often duplicating each other.

But the process of collecting information in order to allocate services is not a neutral one. The agencies which use personnel information exercise control over people's lives — from, at one end of the scale, a decision to refuse hire purchase to, at the other end, a decision to take a child into care, withdraw benefit or refuse someone a job. And the information used as the basis for the decision — which may be inaccurate or irrelevant or involve questionable judgments — will be kept confidential from the one person who is most affected by it.

In a society where privacy is increasingly rare, and people often feel at the mercy of agencies which they cannot challenge, information privacy — the control of personal information about oneself — is crucial. Since 1968, when NCCL published *Privacy Under Attack* as part of our contribution to Human Rights Year, we have been concerned about four key aspects of the information business:

● the way in which personal information is collected;
● the use of inaccurate, out of date or irrelevant information or opinions as the basis for decisions;
● inadequate security to ensure that confidential information is kept confidential; and
● the transfer of information given for one purpose without the individual's consent.[2]

English law, both civil and criminal, is grossly inadequate to cope with these concerns. To take one example, Tracing Services Ltd, the credit reference agency whose employees impersonated police officers, tax inspectors and DHSS officials in order to obtain personal information, was convicted in 1969 of conspiracy to effect a public mischief. The offence no longer exists (thanks to the House of Lords decision in a case involving bugging devices), but nothing has been put in its place. In the absence of a general right of privacy, most people have no redress against invasions of their privacy.

Not only is existing law inadequate, but the government's own strategy of legislating for computerised databanks, via a Data Protection Authority, is tangential to the real problems. As NCCL has consistently stressed, it is not computerisation which invades privacy: the four factors noted above

apply equally to manilla files, index cards or microfiche systems, as well as to computerised databanks.

Certainly, computerisation changes the scale of the problem, by making it possible to collect, store and combine information in quantities and ways that are impossible with a filing cabinet or card index box. Computerisation may also involve different, practical problems, particularly when it comes to security.

For instance, a debt-collecting subsidiary of Diners Club Inc in the US has been prosecuted for allegedly tapping computerised credit-reporting databanks; in another US case, the Factual Service Bureau allegedly obtained personal information illegally from the FBI's National Crime Information Centre, the Social Security Administration and the Internal Revenue.

Where the original information in, for instance, a school record or credit reference file is inaccurate, based on hearsay or gossip, or irrelevant to the purposes of the databank user, then it will not be improved by computerisation. But neither will it be made more harmful — unless, of course, the failure of the security procedures makes it available to thousands of new users.

There is also a new danger in relying on the coding of subjective judgments which may be involved in mechanisation or computerisation: a note scribbled by a Department of Employment official on an unemployed worker's file is a different matter from an "A to D" coding as to employability, which was proposed by the Manpower Services Commission for a computerised experiment on London unemployed workers.

Because the government has decided to legislate only for computers, the Data Protection Committee has been looking for

evidence, in the form of individual cases, of abuses of computerised data. They have, apparently only found one, in a government databank, and that with some difficulty.

This is hardly surprising. NCCL receives many hundreds of complaints about information privacy every year. But people only complain when they can find out (often by accident) what is being done with information held on them. And the databanks which seem to cause most concern are those which are not computerised, and where people are most likely to make the link between the information and an adverse decision — credit reference files; school records; personnel files (where a black mark against an employee may only come to light in the form of a reference); supplementary benefits and social security records held locally.

The most disturbing example of the link between invasions of individual privacy and government secrecy is to be found in police and national security information-gathering. Scotland Yard's Criminal Intelligence section (which deals with associates and suspects, as well as those with criminal records); Special Branch, responsible for political investigations; and the Security Services carry out surveillance operations and maintain records on millions of people.

But the public are not told how many people are involved; what kind of information is col-

lected or how (estimates of the number of phone-taps each year vary from a few hundred to 12,000); and what criteria are used to decide on someone's inclusion in political records.

Scotland Yard has recently awarded a contract for the computerisation of all its records, of which it is estimated that 600,000 will "belong" to the Special Branch. But all this information — the actual numbers involved; confirmation or denial about the extent of Special Branch records; what other agencies, will have access to the information — is refused on grounds of "security."

Public faith in computer databanks is unlikely to be enhanced by the abuse of legitimate security needs to withhold information of genuine public concern.

As the US has shown information-gathering by the police and security services, one of the most sensitive privacy issues at stake; and as this country has shown too, often, the police and security services should be immune from legislative controls designed to protect individual privacy.

REFERENCES

1. John Shattuck, *Privacy and the Control, Privacy Report* Vol. No. 8, March 1976 (American Liberties Union).
2. See *Privacy: The latest Gatherers* (NCCL, 1971) [detailed proposals for legislative administrative action.]

Danger of the secret invasion of privacy

Rising star of hobby market goes on sale in UK

ONE of the potential "stars" of the personal and small business computer business, Apple II, is now being sold in the UK by its newly-appointed official distributor, Personal Computers.

This is a new company in which commodities analysts Rolf and Nolan, has a financial stake, while an ex-employee, Mike Sterland, heads the operation.

Apple, says Sterland, is to be Personal Computers' sole product line for at least a year. He is avoiding rapid diversification to

allow himself to concentrate on marketing the machine.

Although the first sales have already been made, deliveries are being held up by the need for an interface card suitable for operation with PAL colour TVs. This is currently undergoing tests at the main European laboratories, Eurapple in Holland.

Based on the MOS Technology 6502 processor, Apple II is a fully assembled unit that can be equipped with memory ranging from 4K to 48K bytes, and with a price range of

£995 to £1,900. It requires the addition of a cassette tape recorder and television for operation, and it can be directly interfaced with a colour television. A full ASCII keyboard is built into the unit.

Colour graphics are included as a standard item in Apple, and the software includes a 2K byte, ROM mounted monitor and a 6K byte ROM mounted Basic. As an option, there is also an expanded, floating point Basic known as Applesoft.

Sharp fall in public service business

A SIZEABLE drop in the value of billings to public service clients in the second quarter of this year is shown in the last Business Monitor on the UK computer services industry, from the government's Business Statistics Office.

Total billings by UK computer service companies in the second quarter, at nearly £64 million, were about £1.5 million up on the first quarter of 1977 and more than £9 million, or 17%, up on the second quarter of 1976.

Most of this growth was accounted for by a healthy expansion on the private sector, where billings came to more than £34 million in the second quarter of this year, compared with £31 million in the first quarter, and well under £28 million in the second quarter of 1976.

However, the second quarter figure was no higher than that for the second quarter of 1976, indicating an actual reduction in public sector business over the 12 month period if inflation is taken into account.

In contrast, business with overseas clients increased by well over 30% during the same period, the total value of billings rising from £2.4 million to more than £3.1 million. But this rapid growth was checked between the first and second quarters of this year during which overseas business hardly increased.

Business with the public sector fell from nearly £9 million to £7.5 million between the first and second quarters of this year, although the Statistics Office points out that the first quarter level was unusually high.

First user response to the VAX-11/780

FIRST reactions from Digital Equipment users to the new 32-bit VAX-11/780 suggest that it will be a bold systems builder who decides to pioneer usage of the powerful mini.

"In native mode it looks like a real number-crunching winner," Doug Schilling of Arbat commented. "But how do you get your code into it? It seems that only people running under RSX-11 on their PDP-11 machines and writing in Fortran can migrate their software easily.

"At first sight it appears that Macro-11 code written to run under RSX is all right until you read the small print. Then you find that privileged instructions are not allowed, which means that rewriting will be required."

The VAX-11/780 allows PDP-11 software to be run in emulation mode, but its equivalent power is then only that of the less expensive PDP-11/70, so in most cases little will be gained by so doing.

"I think DEC introduced it mainly because it has been missing out in the aircraft simulator market recently for want of a 32-bit machine, losing potential business to people like SEL," said Schilling.

Arbat builds systems for the banking and financial market based on PDP-11 hardware and its own proprietary AIMS operating system and programming language.

"We are assessing the cost of rewriting AIMS to run on the VAX," said Schilling. "It would take us about six months, but we would end up with a machine which runs 2.5 times as fast as the PDP-11/70 at about 1.5 times the cost."

Dr George Coggan, managing director of Gamma Associates, was enthusiastic about the product in principle.

"It's an exciting product, and we see it extending the range

rather than replacing the PDP-11/70.

"The first organisation to order a VAX will be a pioneer, and Gamma would have to evaluate it very carefully before making a decision to buy. But DEC is now the second largest computer manufacturer in the world, and we are happy to see them developing new products at both ends of the line," he said.

Gamma has a PDP-11/70 and two 11/45s, and offers bureau services as well as installing commercial turnkey systems on PDP-11s, mainly running under RSTS.

The lack of an emulation facility for programs written to run under RSTS, apart from those written in Basic Plus 2, has led some people to assume that RSX is the shape of things to come in DEC operating systems and that RSTS will not be enhanced although continuing to be supported.

Geoff Finch, DEC's Northern European OEM marketing manager told Computer Weekly that nothing of the kind had ever been said.

"It is wrong to conclude that we will not continue to enhance RSTS. The two operating systems are designed to solve different problems. RSTS is a time sharing operating system, whereas RSX is a real time operating system.

"In theory, it is possible to write an application migration executive which allowed RSTS to run under VMS: we simply have not done so," he explained.

"VMS will do the same thing as RSTS: it represents a single operating system in which we have attempted to optimise the features of both RSTS and RSX."

The price-performance characteristics of the VAX-11/780 have also led people to conclude that it virtually knocks out the medium scale DECsystem-20

Doug Schilling . . . "How do you get your code into it."

Citibank $2m order to NCR

COMPUTER equipment from NCR worth $2 million has been installed by Citibank in New York, to help in reducing office processing costs and to improve customer service.

The equipment consists of twin NCR Criterion 8550 systems using the NCR Central Information File system, 17 NCR 7750 distributive document processing systems and VDUs.

The distributive systems, located in Albany, Buffalo, and Rochester, are linked online to the 8550s based in Rochester.

CSC upgrades 17 mainframes to 1100/80s from 1979

THE key role that the 1100/80 performs in Univac's marketing strategy is underlined by the fact that Computer Sciences Corp has decided to upgrade all 17 of its 1108 mainframes to 1100/80s, starting in 1979.

The 1108s are used on CSC's international Infonet time sharing service and are installed in three data centres in the US, and in Canada, Aust-

ralia, South Africa and Spain. In the latter three countries, Infonet operates through affiliated or licensed companies.

The 1108s run under CSC's own CSTS operating system, but the broad compatibility between the 1108 and the 1100/80 means that CSTS should run on the new machines with very little software conversion.

The first 1100/80 is to be delivered to CSC next March and will be used for research and development. Two possible upgrades for the 1108, the 1100 and the 1100/40 were introduced by Univac before the 1100/80 was announced late last year.

Prime order

TWO companies in Basildon, Essex, have jointly ordered a Prime 400 minicomputer to handle their own processing and to provide bureau services. They are Systematics International, which provides market research information to manufacturers of construction and agricultural equipment, and Distributed Data Processing, which serves scientific and engineering users.

GILB'S MYTHODOLOGY

Numeric input codes: are they cheaper than alpha?

THERE is a widespread myth in the data processing business that numeric codes for almost everything are somehow to be preferred.

The mythodology of the numeric code has been with us so long, and is so deeply ingrained, that I have seen large car-factory DP installations with hundreds of input document types, and not a single alphabetic code was in use.

I have had serious debates with clients who want to put in pure numeric online terminals instead of allowing for the possibility of alphanumerics. One of these capitulated when I could demonstrate that the time-pressured online registration was faster and safer using a few alphabetic concepts.

The starting point of this myth is the observation that numeric keying in data registration "is faster". And the belief that the introduction of alphabetic codes in the keypunch room would require 180 instead of the present staff of 60 pretty young things.

I have a table of objectively measured keying rates for different types of material on different types of machines (reproduced in Software Metrics*, P.213).

The table provides some food for thought because it clearly shows that almost all forms of alphabetic keying have a raw keying rate two to four times as fast as any of the pure numeric keying rates.

The answer to why this is so is not very far off. The highest keying rates (about 750 keystrokes per minute) are achieved by competition typists, typing a page of text on an electric typewriter.

The typists are well trained and practised in their art. Your keypunch girls are probably not very good at touch typing alphabetic data and they use ten fingers as opposed to keypunchers' five. The words are meaningful to them — as are the sentences — so they can make use of their human buffer memory to speed up the output. It doesn't seem at all unreasonable that our keypunch girl is only working at 200 to 400 characters a minute.

There are no clear grounds for assuming that codes which are designed as numeric codes will result in greater human productivity.

There is even less reason to prefer numeric codes when we consider the extra work of finding the correct code, and filling in a form (MAR becomes 02, SMITHS becomes 023450-8).

The work of finding unique codes for naturally occurring data is excellently suited for a computer program, and programmers who force people to do such demeaning work are committing heresy. The programmer who insists on a numeric code series because it seems to simplify his program subscript usage, has got his priorities all wrong and needs help or another occupation. Unfortunately they really exist, today.

If the code had been designed as alphanumeric (000 to ZZZ, plus national special characters or signs) there would be 249 invalid combinations for each valid combination. A chance corruption of writing or key-impression would have a 249/250 or 99.6% chance of resulting in an invalid code. Thus it would be detected without doing any harm, even with the most primitive control of table or file lookup.

If we should increase the number of objects which the code relates to by say 200% (30,000 customers or products now, for example) then with the pure numeric code we would require an extra digit (25% extra keying effort), whereas if we were satisfied with a small reduction in error detection ability for chance errors (from 99.6% down to 247/250 or 98.8%) we could keep the same number of characters in the code.

Numbers have their place, wherever numbers are natural to use, such as in amounts, quantities and day of the month. But other types of codes have significant advantages too.

My hypothesis: "Systanmtic utilisation of alphanumeric codes results in data collection productivity improvements of at least a factor of two to four."

*Student Literature, Oslo. Input Two-Nine Ltd. 7 Banstead Road, Purley, Surrey CR2 3ER. £8.50.

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Gilb answers the critics

FIRST an apology for a tardy reply to the many readers who have commented on some of the Mythodology columns and the associated letters, so I will not attempt too detailed a comment.

Roger Tagg (Letters, October 13) was not so convinced by my attempts (September 8) to shoot down DBMS, and Jeremy Salter of Norsk Data had similar problems on behalf of his Codasyl based (Fortran based too) minicomputer DBMS (CW, October 20).

I hope that my further efforts to give far more specific and quantitative evidence and references (October 8) were more convincing. Certainly Mr Tagg did not have the benefit of reading it before he wrote.

Both parties were admittedly sales agents for their own products IDMS (Tagg) and SIBAS (Salter). I don't doubt their cases as stated, and certainly I have no specific accusations for these particular products.

I am sure they work, and that they work better than most of the other packages on the market; certainly better than the top-heavy products I was specifically referring to in my column.

Neither of the correspondents offered, or even indicated the existence of, evidence of the relative profitability of using their packages compared to simple file organisation techniques. The more facts the better.

My main thrust is simply to make it apparent that we all need to ask harder questions and get harder guarantees when considering the use of a DBMS.

I rest my case on the evidence presented in my columns — but for those who want to debate more, I will be presenting a special one-day session for Infotech in February in London.

Contrary to Mr Salter's assertion, California is my home country although Oslo is my place of residence.

October, being a prophet in his own country. So he must worry on that score.

Further, I would like to add the headline implications that am in any way anti-software thing, the arguments I make are an attack on badly trailised systems...

SOFTWARE   EDITED BY STEPHEN BELL

US report calls for more investment in development tools

A REPORT produced by the US National Bureau of Standards* takes the view that investment in program development tools by the average computer installation is inadequate, and should take a higher priority in budgets and work schedules.

The document surveys the available software tools in various categories, uncovering a surprisingly narrow specialisation in the functions of such aids.

It goes on to recommend a strategy for the in-house development of programming aids, the chief feature being design of multi-function aids from standard "building blocks", stored on a library.

Knowledge of the techniques of analysing program text and its syntax and collating symbol tables for identifier names in a particular language will, the report claims, equip a user with the ability to build his own program development tools.

As an experiment, a package was constructed to combine editing and syntax checking, so that a user could check immediately that a proposed amendment to a program was syntactically "clean". The syntax checking portion was not developed by the NBS, but obtained from the UK's National Physical Laboratory.

The linking of the "building blocks" for this product brought out a number of problems, the principal one being the conversion of a stand-alone program to a linked subroutine.

Consequently, the report recommends developing the "building blocks" as subroutines from the beginning, even at the cost of programming a dummy "test harness" to run them.

A need was also identified for improved linkages between modules originally written in different languages and a facility for declaring data to be shared by a few modules — something between "local" and "global" data.

The experiment also led to some interesting ideas for future consideration. Those include an editor which will correct trivial syntax errors, and one which points out errors as they are entered. At least one product of the latter type has already been devised.

Extrapolating such multi-function aids further, says the report, the compiler could, in future, be "left largely with the task of code generation".

The NBS report also includes voluminous references to previous articles on the subject, statistics on the existing use of program development aids.

This uncovers the surprising fact that most tools were acquired with the hardware from user groups, or developed in-house. This "suggests a real market for tools from thinly dependent software companies".

* Software Tools: a Building Block Approach; National Bureau of Standards, $2.10 + 25% for mailing outside US; available from the Government Printing Office, Washington DC 20402.

Interfacing RTL/2 is main theme of user meeting

A MEETING of the RTL/2 group is scheduled for December 6 and 7, at the Excelsior Hotel, Heathrow. Topics of discussion are planned to include evaluations of the language, applications experience, port and proposals for future programming standards.

Apart from routine maintenance, an important topic will be the support heading will be interface with operating systems and other machine-specific software. RTL/2 was conceived as a portable language, said a spokesman for marketing agents SPL, but a compromise had to be reached at the OS level, to enable users to take advantage of some of the operational operating system facilities.

Infonet gets database enhancement

THE Infonet time sharing network operated by Computer Sciences Corp has been enhanced with the addition of a new database management system, Manage, which uses a Codasyl-type data definition language.

Building on this foundation, the system provides three data access and manipulation facilities: a programmer interface (from Cobol, Fortran, and Assembler); a custom-built interpretative language; and a report generator.

Manage is fully compatible with the previous data management system, Aladin. It can be used as a structural manager for users' existing Aladin files. Thus, by using this report generator facility, non-technical users can rapidly and easily extract and assemble information from computer files previously unavailable to them. Manage is now the most powerful data management system available on the Infonet network.

Graphics interface

FOLLOWING its release of the Turned Parts Cost Estimation package (CW, November 10), the CAD Centre, Cambridge, has, as promised, produced a similar graphics interface for generating numerical control tapes for machine tools.

The package displays a picture of the original component and, as machining operations, are defined to the NC routine, these are reflected in changes to the picture. The package has been developed at the Centre's production services department.

PROGRAMMER NOTES

Have the new methods squeezed out creativity?

ANOTHER US commentator has entered the opposition lobby on "modern" programming standards. Sociologist Philip Kraft claims that structured and modular programming and the "chief programmer team" concept has been used by management to "de-skill and control their programmers."

Kraft agrees that the techniques have achieved their aim in making the programming task easier and more standardised, and dividing up larger tasks, but questions whether such simplification is necessarily a benefit.

"Barely a generation after its inception, programming is no longer the complex work of creative and avan eccentric people. Instead, divided and routinised, it has become mass production work parcalled out to interchangeable datall workers."

This change, he says, has been dictated by management, whose aim is not to make the job more interesting, but to reduce costs and increase profits.

Long-term programmers among our readers must have had experience of the pioneering days of programming which Kraft admires. Have things changed all that much? Are programmers still creative, or are they interchangeable units? Are the new "units" the same people who did the creativity squeezed out of them, or a different set of programmers with entirely different personalities?

Even if we grant Kraft's thesis, it could be argued that management is right; it is a programmer's job to be productive and make money for the company, rather than to enjoy the job.

While on the subject of structured programming, we should quote a London reader, who queries whether the GOTO is completely redundant, as suggested by Ivor Denicle (CW, November 10) and many others.

Frank House, of Guy's Hospital Medical School, appends a fragment of coding whose function is simply to read an input and direct a user to an appropriate part of the program. He suggests:

Try again: writetext ('1 to input new data, 2 to input new starting point, 3 to resume, 0 to stop')

if d = 1 then goto fresh data;
if d = 2 then goto start point;
if d = 3 then goto carry on;
if d = 0 then begin newline
(1); writetext ('clot') goto
try again;
end;

"This seems to me a natural and self-documenting way of writing the program," says House, "and, yes, I have heard of switch, but I find that less self-explanatory, when I return to a listing after a year or so, and else if uses more ink. Is there a better way of writing this which avoids goto?"

Puzzler

A THREE figure number has only one divisor DE other than itself and unity). Observe that one of the five digits is either 4, can you identify them to turning to page for the solution?

More micros in IBM ops systems?

SOME likely developments in IBM operating systems and their usage patterns have emerged from a meeting last week of a sub-group of the IBM user group, Guide. Most significantly, more ammunition was given to the expectation of increased microprogramming on the periphery of the operating systems.

The meeting, of the DOS project group of Guide in the UK, took place in Worthing, Sussex and attracted about 50 DOS and DOS/VS users.

In response to delegates' questions, John Wright, from IBM's Large Systems Group at Chiswick, indicated that file access methods could, in future, be microprogrammed within separate I/O processors or intelligent disc controllers, both speeding execution and taking the load off the main processor.

There has been a growing feeling among users that such microprogramming is on the way. Already there are microprogrammed "assists" for the latest 370s making the hardware more amendable to the required operating system.

Sorting and other utility software, users feel, is also an area which IBM could be viewing as ripe for microprogramming. Suppliers of independent utility software have already expressed fears of such a trend, pointing out that ready-made microprograms would severely handicap sales of their products (CW, May 5).

There are snags to the microprogramming of systems software, Wright admitted. One of the primary difficulties with the disc access methods would be "stabilising the specification", since alterations would be more difficult to implement than with pure software.

Wright's chief topic, however, was the 3031 processor. In his presentation, he gave particular emphasis to MVS.

Taking into account the target market of the 3030 range, and adding price-performance influences on movement within the 370 range, a large increase can be expected in installations moving directly from DOS/VS to MVS, the meeting felt.

A report was given of Guide sub-group meeting earlier this month in Mainz, West Germany. There, IBM gave strong hints that DOS/VS would be supported into the foreseeable future, and some observers saw OS/VS1 disappearing first.

The user community would then split into DOS/VS users at the small end of the range, and MVS on the 158 and upwards, with an increasing proportion of VM/370 users, mostly those with a time sharing requirement.

The UK Guide meeting was also addressed by Anthony Hemens, from British Home Stores, who spoke on the growing number of disc-space management aids available for IBM users and gave his experience of one.

John Gray, of Lombard North Central, gave an account of benchmarks on IBM's new DOS/VS link editor, which substantiated the company's claim for a large improvement in link edit time.

Zeus-Hermes' move into applications pack soon

THE first applications packages from software house Zeus-Hermes could shortly make their appearance as a result of work done for specific clients. The market for two pieces of software as generally available products is at present being assessed, said director Mick Punter.

Both systems are based on Zeus-Hermes' ICL teleprocessing monitor Cortex, and were developed for Rocal and the Yeast and Food division of the Distillers Company.

The Distillers Company software aids the often difficult task of reconciling cash received from a customer with several outstanding invoices.

Using an ICL 2903-based TP system, a clerk can "pull" selected invoices from an account, while the outstanding cash is displayed. The clerk can pull different invoices until this balance reaches zero.

The software developed for Rocal handles stock and production control, and will be implemented on two ICL 2904s, with an attached network of terminals.

Look monitor enhanced

AIMING to provide the user of IBM's MVS operating system with better aids to tuning the software, Applied Data Research, of New Jersey, has added facilities to its Look performance monitor.

The main additions are two commands providing information on the functioning of MVS' System Resource Manager and Auxiliary Storage Monitor. Commands have also been added to control the functioning of the SRM.

Look also applies to other OS and OS/VS environments and is marketed in the UK by CAP.

PEOPLE

Charity with a punch

A FUND-RAISING effort by punch operators of the NCB has raised enough money to buy a guide dog for a blind person.

The 40 punch girls at the Coal Board's Cannock Computer Centre have raised £500 in 12 months, by organising weekly collections and various events.

A disco brought in £100, and at Christmas they made up hampers and raffled them.

Although their fund-raising activities have been going on for several years, this is their most ambitious effort so far. The money will pay for the purchase, training and upkeep of one guide dog, and in fact £12 was left over, to be put towards their next effort.

Eileen Aubrick of Houston Instrument in Austin, Texas, has been promoted from programmer/analyst to software support manager.

William Gott has become director of product marketing for Qume in Hayward, California. He was most recently marketing manager for terminals and peripherals with Texas Instruments.

Michael Dixon has been appointed sales manager with LUCS, the London subsidiary of the US United Computing Systems. He joins the company from CDC Data Services UK, where he was product sales manager for commercial bureau services. Brian Sutton, formerly sales and technical support manager, has been appointed marketing and technical manager.

Allon Currier has joined Harris as Northern area sales executive, based in Manchester. Previously he held the same position with Modcomp.

Owl raffle

CUDDLY owls raffled by Nashua on its stand at Compec ware won by:

Colin Wabb, Air Products of New Malden, Surrey;

S. V. Shephard, AWRE, Aldermaston;

David Summers, NatWest.

John Shapcott of Extel has been promoted from senior sales executive to sales and marketing manager. Roy Hoare joins as a sales executive, and Nick Campbell and Julian Costley as sales reps.

Peter Blacknan, formerly an analyst with Programming and Software Implementation, has joined Harrison as a systems analyst. Fred Kitchener joins as a programmer, from Framlington Computer Services, a subsidiary of London Merchant Securities.

David Robinson becomes static analyst with 3M's Manchester office; his last job was as sales agent with Certified Laboratories Ltd of Warley.

Paul Aryam-Tatham, who until recently has been technical sales executive responsible for management sciences/linear programming at Scicon, has been appointed overseas co-ordinator.

Michael Lorimer has been appointed financial controller and company secretary of Inforex, where he will also be responsible for general admin. He was previously group accountant for Manthel Holdings of Wellington, New Zealand.

Peter Crofts, lately senior consultant in Rank Xerox' maintenance software group, has gone to Computer Associates UK as senior technical support consultant.

Tony Lay, David Martin and Kim Jenkins have joined Package Programs Ltd as systems consultants. Lay formerly worked for Factory Mutual International as a systems analyst, and at present is taking his finals to become a certified accountant; at PPL he will introduce the MMS package to the UK. Martin was formerly a programmer with Hoskyns Systems, and Jenkins was a programmer with Private Patients Plan Ltd; both were recruited at ICL consultants.

Peter Airs and Dinos Apple have become APL consultants with I. P. Sharp. Airs recently got his MSc from Westfield University College London, and was formerly a programmer with Fraser Williams, while Apple was previously a lecturer in mathematics at the University of the West Indies in Trinidad.

THE Midlands Regional Officer of the Guide Dogs for the Blind Association, Charles Whittle, receives a cheque for £800 from Christine Lomas representing punch operators at NCB Cannock.

Calls for papers

PAPERS are solicited for the third conference on Artificial Intelligence to be held in Hamburg on July 18-20, 1978. It is co-sponsored by the Society for the Study of Artificial Intelligence and the Gesellschaft Für Informatik. Three Review Lectures, on representation of knowledge, programming methodology and vision systems, will be given, and the organisers will consider both papers whose subjects overlap with these lectures, and papers on other subjects. For further details contact the Programme Chairman, Derek Sleeman Dept of Computer Studies, The University, Leeds LS2 9JT.

ABSTRACTS are invited for a workshop on computing skills and adaptive systems to be held on March 21-22 and sponsored by the University of Liverpool Computer Laboratory. The acquisition and exercise of programming skills; psychological variables in the design of programming languages; interfacing interactive systems; the provision of guidance to non-professional computer users; experimental design and method in the investigation of computing behaviour, are some of the possible topics. Length of abstracts should be 300 words and the deadline for submission is December 24. Papers should be sent to the Secretary, Computing Skills Workshop, Computer Laboratory, University of Liverpool, P.O. Box 147, Liverpool L69 3BX.

COURSES

A MICROPROCESSOR course is offered by Hatfield Polytechnic. It will take place over a period of eight consecutive Wednesdays from 2 until 8 pm, between January 11 and March 1. The Polytechnic's DEC system-10 will be used for practical work. The course fee is £110. Further details and applications come from Mrs P. Ingram, School of Information Sciences, Hatfield Polytechnic, PO Box 108, Hatfield, AL10 9AB.

MANAGEMENT courses and seminars from the British Institute of Management include Selection Interviewing, January 18 and Creating an Atmosphere for Change, January 24-25. Both of these take place in London but courses are offered by the BIM in other parts of the country.

For details contact Mrs V. Boone, Management House, Parker Street, London WC2B 5PT, tel: 01-405 3456.

THE courses brochure from the Inbucon Management Development Service for January 1978 to mid-1978 is now available. The range of about 70 courses includes titles such as Computer Appreciation for Business Executives, Company Doctoring for Improved Profitability, Marketing and Selling into Europe, and many more, grouped under the general headings of executive development, general management and law, finance, marketing and selling, personnel, production, purchasing, development and data processing. Further details from the Course Registrar, PO Box 84, Camberley GU16 5RH, tel: 0276 20214.

DIARY

Cost of Post Office services criticised

HARSH criticism of the Post Office's attitude towards its customers and the costs of its communication services, emerge from the survey of the Post Office carried out by the Data Processing Management Association and Langton Information Systems.

The survey also shows that organisations do not expect their use of communications to change much despite the advent of electronic mail and international information networks.

As expected (CW, November 10) the cost of Post Office services received most criticism. Half the organisations polled said costs were a firm deterrent to introducing communications systems, and 24% said systems were often rejected because of them.

Half of those questioned also thought that the Post Office was slow to respond to users' needs. One user said, "The problem is finding the right person with the required information within the Post Office organisation."

Another said the Post Office did not have the practical experience of the day-to-day problems of controlling a commercial organisation.

This comment was taken further by a question on the Post Office's level of consultation with users. One user said, "All efforts should be made to direct the Post Office's attention to the real world of data processing."

Another suggested that the DPMA should be on an executive committee set up to steer the Post Office.

Respondents agreed with the Carter Committee's proposal that the Post Office's communications activities should be split from the postal business. They also called for greater freedom and competition, arguing that the monopoly was impeding development.

Users were conservative about their future use of communications. Electronic mail was regarded as too far in the future even to start working out costs, and few users saw any great increase in facsimile or graphics transmission.

Similarly, 60% did not envisage any significant change in their participation in public networks or in their use of external information systems.

Viewdata and word processing fared slightly better. Almost 20% said they would be doing much more text transmission and 21% said there would be a substantial change in their communications plans because of Viewdata.

A typical comment was, "If a cheap, flexible, Post Office-rented terminal with a built-in modem arose from Viewdata we would seriously consider using it for our larger networks."

The result of the survey has been sent to the Post Office, the Carter Committee and the government.

A fully-tabulated report will be available soon at £3, or £2 to DPMA members, from the DPMA, 27a York Road, Maidenhead SL6 1SQ or from Langton Information Systems Ltd, 74 Newman Street, London W.1.

Installation guide for the layman

A LAYMAN'S guide to installing a computer has been produced for directors and senior managers of small businesses as part of the Input Two-Nine series on current aspects of computer technology.

The guide, Computerisation for the Small Business*, was written by Edward Cluff and Alan Simpson, both officials of the Data Processing Management Association.

It starts with basics, going into the reasons for installing a computer. One chapter explains files, batch and interactive processing and distributed computing in simple terms and the guide then moves on to selecting a computer, choosing between software packages, turnkey systems and in-house staff, bureau services, finance and the second hand market.

Chapters on running the computer look at data preparation, input, operating costs, maintenance, standby, security and management. The appendices list questions designed to reveal the information needs of different company departments.

The guide is comprehensive in the range of topics it covers and would make valuable preliminary reading for companies buying a computer for the first time.

Perhaps two failings of the book are that the chapter on costs deals in general terms rather than giving examples of costs, and the absence of useful names and addresses. Organisations like the National Computing Centre, for example, are mentioned only briefly in passing. But it is a useful book none the less.

*Computerisation for the Small Business, by Edward Cluff and Alan Simpson. 166pp. £9.95 or £8.50 to DPMA members. Input Two-Nine, Bunstead Road, Purley, Surrey CR2 3ER.

BIS profits doubled

A 53% INCREASE in turnover and a doubling of profit was recorded by Business Intelligence Services, the UK consultancy, market research and training group, in its financial year which ended on February 28. The group expects similar growth in turnover this year.

Turnover went up from £1.7 million to £2.7 million in 1076-77. Pre-tax profit rose from £142,000 to £355,500. Overseas business accounted for 35% of income.

During the year the group opened a New York office for BIS Software, and a Sydney office for BIS Marketing Research.

NEWS IN BRIEF

Shop window in Abu Dhabi

A PERMANENT showcase for British products is to be opened in Abu Dhabi in a bid to win business from the oil-rich United Arab Emirates. Exhibits will be on permanent display at the two-floor centre and open to view six days a week.

Sites are booked on a one-year renewable basis at a cost of from £2,500. Back-up marketing services will also be provided.

Weather system

FRENCH weather forecasting body Meteo France is to install a Control Data Cyber 175 alongside its existing CDC 6400 installed in 1967. The 175 replaces a Cyber 74 installed in 1972. It will make 2.5 million characters of extended core storage with the 6400.

£100,000 order

AN order worth £100,000 has been placed with the Turnkey Division of CMS for a 160K DEC DataSystem 537, by Avimo Ltd, of Taunton, Somerset. The system, which will support eight terminals, is due to be installed in December.

First survey

FIRST annual survey of the European computing services industry has been published by the European Computing Services Association. The survey analyses the processing, consultancy and data preparation sectors of the industry in 14 countries and gives details of service companies. It costs $60 to members and $210 to non-members from Quantum Science Corp, Norfolk House, St. James's Square, London SW1.

Kode wins order

CASH and carry wholesaler, Makro, has placed an order worth £105,000 with Kode for 14 Datanet terminals. These will be used to transmit sales data from the company's six warehouses to its headquarters at Manchester for overnight processing.

CTL installation

A CTL Model 8030 computer system worth £60,000 has been installed by Michael Davis (Shipping) Ltd of Richmond, Surrey. The system consists of the CPU, 48K of memory, paper tape reader, cartridge disc drive, four VDUs and a printer.
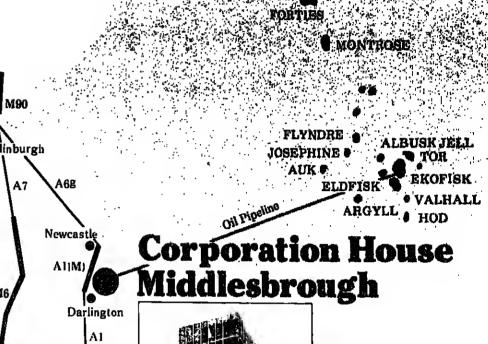
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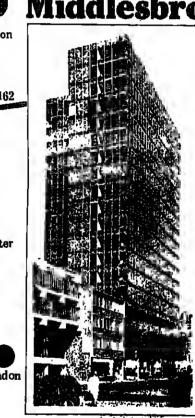
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Newcastle
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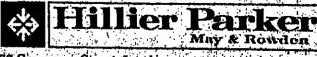
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Computel

would like to express their appreciation to the 250 senior computing executives who last week attended the four one-day presentations "2900—The Computel Experience" at our new Computer Centre at Bracknell.

We thank them for their interest and look forward to helping them keep up with the changing computer scene.

computel

Where we build on experience to set the pace.

Talking device for vocally impaired

THE problems of communication faced by people who are non-verbal and non-vocal are among the most severe of any handicapped group. Hence it is interesting to see the introduction in the US of the Phonic Mirror Handivoice, a microbased tool aimed specifically at providing speech communications capabilities to this group.

Being marketed by HC Electronics Inc, a subsidiary of the American Hospital Supply Corp, the system has been developed by Votrax, a company which specialises in phoneme-based speech simulation equipment.

Two types of portable, battery operated units of Handivoice have been developed.

The HC 110 uses a lap-board approach to serve the needs of the developmentally disabled user. It incorporates a 128-key display area and up to five display area overlays, each of which assigns a word, phrase or pictorially represented word to the keys.

It is pre-programmed with 373 words, constructed from a basic store of 45 phonemes and 16 short phrases, such as "My name is". Also included are 13 morphemes, which are word prefixes and suffixes, and the 26 letter English alphabet.

This gives the unit a potentially unlimited vocabulary and operation is by using the required overlay over the display area and pressing the keys.

The HC 120 unit is for more experienced users. It uses a calculator type keyboard as the input medium for a three-digit code that can be used to represent up to 999 different words or phrases. In other respects, its capabilities are similar to those of HC 110.

In Europe, they will be available through Phonic Ear International A/S Formervangen 34, DK2600 Glostrup, Copenhagen, Denmark.

HC 110 version of the Phonic Mirror Handivoice is capable of producing nearly 500 words for the vocally impaired, all from a basis of 48 phonemes.

Shape of products to come from Motorola

NEXT year will be a busy one for the microprocessor industry, with the news that Motorola is joining Zilog and Intel with new product introductions including a 16-bit device to be known as MACS.

Definite introductions by Motorola next year are the 6809 and 6801 processors, both scheduled for sampling during the third quarter of 1978.

The 6809, still officially on the Motorola "secret list", has been designed as an upgrade of the 6800, 8-bit processor. Source program compatible with the 6800, the 6809 will be equipped with an increased instruction set of 80, and will have 348 operator codes. Although still an 8-bit device, the part will be able to handle 16-bit data words, as it is equipped with the ability to address various registers as one, rather than individually.

It will also be equipped with three extra registers, one of which will be an extra index register. The device will also have a new bus structure allowing faster operation, 11 modes of address, and the facility to do up to 8 x 8 multiplication. Division capabilities, however, are not provided. Direct memory addressing capability is 64K bytes, although memory addressing over this figure is said to be easy using a page mode.

One of the main areas of use for the 6809, as seen by Motorola, is in applications utilising very high level languages where a "super" compiler is required. It is seen as an eminently suitable for operations with such languages as Fortran and Cobol.

The second introduction, the 6801 processor, is also a program level compatible with the 6800 device. Aimed squarely at the single chip control market, the part will feature around 1K of ROM and 128 bytes of RAM, and will have a single I/O structure, based on 28 lines.

Still under wraps and with a definite introduction date beyond "the end of the year", the Motorola Advanced Computer System, 16 bit processor will be joining the "equivalent" stakes with a processing power that should be equivalent to a PDP-11/45. As sources indicate, it will certainly be a complex part and will contain around 100,000 devices on the chip.

Byte Shop chain to stay independent

THE news that the Byte Shop chain of retail computer stores in the US has been purchased by the Logical Machine Corp (CW, November 24) due to "experiencing capitalisation problems despite a brisk sales pace", can be taken as a sign of the problems involved in bringing high technology into the high streets.

There have been reports from the US that all may not be as well as it might be with the growing number of computer oriented retail outlets that have sprung up across the Atlantic. Such reports have indicated that the overall level of business has stabilised, and in some cases dipped, while others have shown that sales have shifted towards add-ons and peripherals rather than processor systems, thus indicating that the initial system market has been filled.

Trends such as these, not uncommon in any untried market, can often require considerable finance to overcome, and it is therefore not surprising to see new finance coming into a potentially lucrative long term market.

It also makes sense for that finance to come from within the computer industry and in explaining the move, Logical president, a British expatriate John Peers said, "We decided to extend our penetration into areas where conventional marketing costs do not allow a minicomputer systems to be effectively sold and supported. The tiny first-time business user at the personal domestic market are examples of these sectors."

Logical plans to invest both money and expertise in the Byte chain. "There is no alternative to expansion," Peers said. "We are going to open up as many professional and well-funded retail outlets worldwide as we possibly can, and we are seeking people with the knowledge and ability to join us."

Peers sees the purchase as enlarging the scope of Logical's operations, moving the company's product capability downward towards micros.

The company is best known for its Adam computer system, of which 350 have so far been installed. The Byte Shops, however, will not be integrated into the Adam operations, and will be run as an independent business.

Conference proceedings

THE proceedings of the first international Microcomputers, Minicomputers and Microprocessors conference, held last June, in Geneva, are now available from IPC Science and Technology Press.

Comprising a complete record of the technical sessions of the conference, the book provides information on such topics as coatings and economics of microprocessor based products, mini-microcomputers in real time systems, hardware/software design trade-offs, testing and reliability of microprocessors, higher level languages and programming and trade-offs for mini/microcomputer selection.

International Microcomputers / Minicomputers / Microprocessors '77, pp 388. £16. Available from IPC Science and Technology Press (Books Department), 32 High Street, Guildford, Surrey.

Course announcement

"ASSEMBLY Language Programming for Microprocessors" is the title of a two-day course to be held at the City University, London, on December 15 and 16.

The object will be to provide practical experience of the writing, assembling, and execution of programs for microprocessors. A crossassembler and simulator will be available for use, and the course will include hands-on operation of micro development systems.

The registration fee (£65), including lunches, course materials and computer time, and attendance will be limited to 15 delegates.

Enquiries for the course should be addressed to J C Davies, Department of Electrical and Electronic Engineering, The City University, St. Johns Street, London W4 1LN. Telephone 01-253 4399.

Evaluation plans for Mickie and Mavis

THREE Mavis systems, the audio visual equipment developed at Loughborough University and the National Physical Laboratory (CW, September 15), are to be built by Ferranti for evaluation.

These will incorporate either floppy discs or bubble memory, and be based on the Zilog Z80 micro. First production models are expected to be ready by the middle of next year.

Another NPL project, Mickie, the hospital patient interviewing system (CW, June 9), has received backing from the Department of Health and Social Security, and five models have been ordered for evaluation.

Meanwhile in the Commons the possibility of severely handicapped people being provided with computer terminals or VDUs in their own homes was suggested by Lewis Carter-Jones, Labour MP for Eccles.

Commenting on information about assistance provided by the Training Services Agency to train disabled people as programmers, Mr Carter-Jones said he wanted a lot more done than he had been told about by John Grant, Under Secretary for Employment.

"The difficulty is spreading the knowledge of what is possible," he said. "It needs motivation on the part of the disabled and the will to help by employers."

In his reply, Mr Grant said that training in computer programming was available under the Training Services Agency's scheme in colleges of further education, private colleges and with computer manufacturers.

"In addition the TSA is sponsoring two pilot courses in computer programming on a residential basis in co-operation with the BCS specifically for severely disabled people.

"Computer training for visually handicapped people is available through arrangements made between the TSA and the Royal National Institute for the Blind."

Mr Carter-Jones said there should be more residential courses like the two being run with the BCS.

Xerox moves into word processing

A RANGE of advanced word processing systems has been introduced in the US by Xerox. Known as the 850 and based on development work done at the company's Palo Alto Research Centre, the system comes in both screen and teleprinter-oriented configurations. Up to 280 pages of text can be stored.

Each 650 has a processor with integrated dual floppy disc drives. Other devices for printing, communications and magnetic storage are available, as well as interfaces for IBM equipment.

A feature of the 850 is a cursor control that responds to the touch of a finger on a flat disc. The CAT, short for capacity activated transducer, is said to be easier to use and more suited to the office environment.

An 850 with a typewriter and plasma display 24 characters wide, will sell for $12,900, and the larger unit, with a 66-line, 102 character-wide screen, slave printer and CAT costs $18,600.

Xerox in the UK says that an 850 is being installed with a customer at the end of the year for an extended trial.

Rather than being based on work done by the text processing team at Palo Alto, the 850 is said to have derived from studies carried out by a group which has been looking at ways of using computers to aid learning.

The command structure of the 850 system is a close cousin to the information processing system, which is written in an interactive language called Small Talk. That language and the rest of the system is based on concepts attributed to Dr Alan Kay of PARC.

The 850 family and other work done at the research centre can perhaps be seen as interim steps towards what Dr Kay calls Dynabook, a personal computer the size of a book with the power of today's fast minis.

The 24-character strip display on the Xerox 850 word processor enables text to be edited before being printed out. Each of the unit's two floppy discs can store 140 pages of text.

OP SPOT   By Bernard Allen

The power game interrupted

THE lack of standby power supplies in computer installations was brought into focus by the recent power cuts.

These had a troublesome, rather than disastrous, effect in many of the installations to which I spoke. Many expressed annoyance at the inconvenience, but they had been able to overcome the problems with varying degrees of success and difficulty.

In retrospect, this DP management in general learnt anything of value from this episode, and would it be better prepared to deal with a similar situation in the future?

According to David Rees, project co-ordinator at the Standard Chartered Bank, "We have a generator and I don't see us changing our procedure much at all.

"We may be looking at no-break back-up power, because we are planning to increase our kit. Also the bank's dependence on computing is increasing and the cost of no-break systems is becoming more reasonable," he added.

The majority of installations have no firm back-up power. Such sites, Thames Polytechnic is one, are entirely at the mercy of cuts and are forced to wait until the power supply is resumed, or close for the day. Comments Brian Fletcher, operations manager at the Poly, "There is nothing we can do about the situation because we cannot afford a generator and so will be in the same situation next time."

A survey by IDC Europa points out that the power cuts have prompted DP managers to take a closer look at the various standby power systems available." It states that 13% are considering some sort of secondary power source (see Table 1).

The survey concludes that the lack of reserve electrical power sources can be attributed to a lack of foresight in planning an installation, and the small percentage of the DP budget that is dedicated to so-called "environmental equipment. It is estimated that only 1% to 5% of the DP budget is allocated to computer room equipment.

It is clear that many users are unaware of the various faults and inefficiencies of electrical-supply, and it is suggested that new users should check that incoming supplies are adequate to meet the expected maximum demand.

*The Market For Computer Room Equipment in the UK, £145, IDC Europa Ltd, 2 Bath Road, London W4 1LN.

Generator	31%
Generator and static inverter	3%
Mobile generator	3%
Planning to use standby power	13%
Standby not used	46%

Table 1. How many are prepared for power cuts?

Swing from rentals grows at IBM

The trend away from rentals and towards outright sales at IBM is accelerating. Comparing the three months to September 30, 1977 with the same period in 1976, sales grew by 35% but rentals and services grew by only 5.7%. Comparing the nine months to end-September 1977 with the same nine months in 1976, the trend is less marked but still clear. Sales grew by 19% and rentals and services by 6.9%.

The costs and expenses of rentals and services are just about static at between 36.5 and 37.3% over both the three month and nine month periods, but the cost per sale is falling. Costs and expenses for sales in the three months to September 30, 1977, were 30.6%, down from 32% in the same three months of 1976. This fall is attributed by IBM to a change in the mix of products sold.

£50m boost for micro industry

● From front page

on the Miproc16 16-bit board system. Extremely fast for a micro, at 2.85 million instructions per second, the system is aimed primarily at the military and high speed communications markets.

Also aiming at the military, Ferranti has the F100-L single chip, 16-bit micro. Held up for a while through the lack of the interface chip set, the device does have chances in the commercial market. Its main problem is the lack of a second source for its production process. GEC Semiconductors is not in the main stream of manufacturing, and bases its operations on its agency agreement for the Intel family of processors, and is

a major UK outlet for the device. It was the first company to produce a resident high level language compiler for the 8080.

● Following recent market developments, the Plessey Group is restructuring its worldwide activities in the fields of computer memories, minicomputer add-on memories, and peripherals, and microcomputer systems, previously convered by Plessey Microsystems and Plessey Microsystems. The memories and microcomputer activities will now be operated as Plessey Microsystems, based at Towcester, while the minicomputer add-on and peripheral operations become a new company called Plessey Peripheral Systems, based in Irvine, California.

P & O time sharing service

LATEST user to plan a time sharing bureau service is the P&O shipping group. To handle the service, the group's London office is expanding its mainframe from an IBM 370/135 to a 370/148. The VM/ 370 operating system will be added to the DOS/VS currently used.

Initially, the bureau service will be chiefly for the group's own subsidiaries, many of which at present use external bureaux. Outside users will, however, have access to the P&O machine. Among the languages to be provided will be APL and Basic.

GUEST CHESSLAB — DANNY KOPEC

Machine victory

THE October meeting of the ACM in Seattle produced the most exciting contest yet in the annual series of North American Computer Chess Championships. Chess 4.6 and Duchess drew in the fourth and final round to finish with 3½ points each and thus share the lead.

Outside the tournament proper, Chess 4.6 played four games against the US speed champion, losing three and winning one. International Master David Levy played two speed games against Chess 4.6 and one against Duchess, losing all three.

In "speed" chess the machine is set to take an average of five seconds to select each move. The human must complete his first 60 moves in five minutes on his clock. If by then the machine has not either mated or announced mate the human player is the winner.

Greatest surprise of all, David Levy gave a simultaneous display against seven of the programs and managed to lose,

In this Guest Chesslab, US National Master Danny Kopec, reports on the North American Computer Chess Championships, and provides a critical commentary on the game in which International Master David Levy lost to CHESS 4.6. Mr Kopec is at present a post-graduate student in the Department of Machine Intelligence at Edinburgh University.

against Chess 4.6. Here is how the game went, with some of my comments on the game.

White:
D. N. L. Levy

Black:
Chess 4.6

1.	P-Q4	N-KB3
2.	N-QB3	P-Q4
3.	B-N5	P-KR3
4.	BxN	KPxB
5.	P-K4	PxP
6.	NxP	

It is now like an Exchange Variation of the Ruy Lopez (1. P-K4, P-K4 2. N-KB3, N-QB3 3. B-N5, P-QR3 4. BxN, QPxB 5. P-Q4, PxP 6. NxP etc.) only here White's 4-3 majority is on the Q-side, so Black's pawns are

more of a menace to White's king if he castles K-side; there is less piece protection to the White King on the Q-side.

7.	P-QB3	Q-K2
8.	Q-K2	B-K3
9.	N-B5	B-Q4

An active move, indirectly protecting the QNP. Black is not wasting any time putting the two bishops to work.

10.	O-O-O	QxQ
11.	NxQ	BxN
12.	PxB	BxRP

A sound pawn snatch. Black is not behind in development and the pawn formation was already balanced. Unlike Spassky-Fischer, Game 1, 1972, Black's bishop is in no danger.

13.	N-Q4	NxN
14.	RxN	O-O
15.	R-Q7	QR-B1
16.	P-QB4	

This is an unsound attempt to trap a bishop that cannot be trapped. White's bishop is hemmed in and his pawns are just weakened. Much more to the point is 16. P-B6 taking advantage of White's only trump — the rook on the 7th. Then if 16 ... PxP, or P-QN3, 17. B-R6. Notice how that motif is destroyed by the move played.

	...	B-N6
17.	K-Q2	KR-K1
18.	B-Q3	B-R5
19.	R-Q4	B-B3
20.	P-B3	R-K4

Black now has a positional advantage in addition to an extra pawn. White's bishop has become distinctly bad with many pawns potentially fixed on its colour.

21.	P-QN4	R-N4
22.	B-B1	P-QR4

A superb lever. Just what is needed to destroy White's Q-side pawns or create a passed pawn. The question: "Is Black's forthcoming passivity only temporary?" needs to be answered.

23.	P-R4	

If 23, P-B4 instead, then 23 ... R-N6 and ... P-KN4. But as played, Black's rook is coyly driven back to a better square and White has further weakened himself.

	...	R-K4
24.	P-N5	B-K1
25.	R-Q5	R-K2! (see Fig. 1)

Superbly handled. Who says Chess 4.6 is only a tactician? This fine move is preparatory. White now has no answer to the positional/tactical stroke ... P-B3. The reader must not jump to the conclusion that Levy thereby lost his cool which specifies full match-up conditions. But it would surprise me if some bookies were now to shorten their odds for side-bets!

26.		P-B3
27.	R-Q4	R-K4
28.	P-N6	R-K4
29.	B-Q3	RxP
30.	R-K1	R-K4
31.	R/4-K4	

R-QR1 is better, avoiding trades, and with at least some hope of winning Black's QRP.

31.	...	RxR
	BxR	P-R5

This is premature. White should immediately pounce on the RP with 32. R-QR1.

	...	N-B3
32.	K-B3	B-Q2
33.	P-B5	P-R6
34.	...	N-R4

Now it's too late for 34. R-QR1 ie. 34 ... R-R1, 35. K-N3, B-B3 and ... P-R7.

35.	B-B5	B-K3
36.	PxB	BxB
37.	R-QR1	B-Q1

If 37. R-K7, R-QR1 etc.

38.	K-N4	R-Q4
39.	P-B4 ??	RxP/KB4

What could be the point? But if 39. RxP, then R-B5 ch!

40.	KxP	RxP ch

If 40. K-R5, then ... R-QB5 and White is just about moveless.(!?

Fig. 1: Chess 4.6 v D. Levy
In this position Chess 4.6 played 25 ... R-K2! Shall we call this a positional or tactical ploy? White's defenceless against P-B3 which will win more material.

40. K-N3 nr B3, then ... RxP ch wins easily.)

	...	R-B5
41.	R-Q1	RxBP
42.	R-QB ch	K-R2
43.	R-Q7	R-R4 ch
44.	K-N4	R-QN4 ch
45.	K-R4	RxP
46.	RxBP	K-N3
47.	R-Q7	P-KB4
48.		Resigns.

To sum up. Rather than calling Chess 4.6 positional or tactical, I would call it an impressive materialistic player. Here the human Master has given a pawn-structure and end-game lesson. We must recognise that it was a simultaneous game, and that Levy may have been very tired.

The reader must not jump to the conclusion that Levy thereby lost his cool which specifies full match-up conditions. But it would surprise me if some bookies were now to shorten their odds for side-bets!

Expanding operations

HAVING based its early activity on selling Diablo printers and terminals, Zygal Dynamics, of Chesham, is now expanding its operations by taking on the exclusive distributorship of Intelligent VDUs and also distributing DPS Datamaster, data storage and editing units.

coils for Zygal to take on a million worth of terminals over a five-year period. Each terminal is based on a Z80 processor backed up with bytes of read/write memory.

Zygal intends to develop software for certain applications and will offer these to meet special ...

How did you get your job?

FINDING THE RIGHT STAFF

If you are responsible for recruiting computer staff and have come to the conclusion that there is no easy solution to the problem of finding suitable people, you are undoubtedly right.

There is no easy solution. But, depending upon the way in which you tackle the recruitment problem, there are some approaches which will prove more effective than others.

A Computer Weekly seminar, entitled "Solving the Computer Staff Problem," aims to show how this can be achieved. While not attempting to provide a facile solution, it will nevertheless indicate how the computer user can set out to formulate a more positive recruitment policy.

The seminar, which is being held on Thursday, January 19, 1978, at the Cafe Royal, London, kicks off with an examination of the current recruitment scene, paying particular attention to computer people and their motivation. Having set the scene the next session will look at the problem from the user's viewpoint, when David Payne, a personnel officer with Tesco, explaining how his company gets to grips with the staff problem.

Then two senior executives from different types of organisations — a recruitment bureau and an advertising agency — will explain how the user can make the most of the services they offer.

A session by George Penney of

the National Computing Centre, will outline the facilities offered by the NCC Job Selection Service which uses systematic tests to assess applicants' qualities and to compare them with national norms.

A special session will be devoted to the key job in any computer installation, that of the DP manager. John Goldsmith, the wellknown recruitment consultant, will look at the problem of picking the right man for the job, and will ask whether there is an adequate career structure for DPMs.

The increasing use of contract staff, not just to overcome work bottlenecks or to help when peak workloads occur, but also as a more permanent feature of the job scene, will be examined by Ian Humphries of Knight Computer Staff.

Finally, a group which is trying to bring some order to what is in some ways a chaotic situation will explain its aims and achievements. The New Year on a positive note should find out more about this seminar by contacting Chris Harvell, Room 125, Dorset House, Stamford Street, London SE1 9LU, Tel: 01-261 8738.

The staff problem will be with us just as much in 1978 as it has been in 1977. Those who want to start the New Year on a positive note should find out more about this seminar by contacting Chris Harvell, Room 125, Dorset House, Stamford Street, London SE1 9LU, Tel: 01-261 8738.

Systime on way to No 2 position in UK

By John Kavanagh

AT the end of last year Systime predicted that in 1978 it would become the UK's second biggest computer manufacturer. At the time that looked a rash statement made in a state of euphoria by a company which had just increased its turnover by almost five times in three years. After all, the turnover was still less than £3 million and the company had been building systems for

less than a year.

Almost a year later Systime stands by that prediction, and well it might. For turnover this year is up to £4.5 million, the National Enterprise Board has bought a 26% stake in the company, giving it £280,000 immediately and £700,000 to support development over the next three years, and planned moves into Holland and Ger-

many are expected to help boost turnover to £10 or £11 million during 1977-78 and to £12 or £14 million the year after.

The term "computer manufacturer" needs qualification, perhaps. Of the 15 to 20 circuit boards in a Systime series 5000 for example, only two, the Digital Equipment PDP-11/04 and 11/34 processor boards, are not designed and put together

by Systime. All the others — memory boards, interfaces and peripheral controllers — are designed, assembled and tested at Systime's factory in Leeds using UK-made components.

"Can you say that this is not a Systime computer?" asks Nick Willard, marketing manager. "We could make the processor boards tomorrow, but who wants to get involved in

developing operating systems? Besides the PDP-11 is still the best minicomputer around. It's so versatile, and DEC keeps it up to date."

Systime also builds its own display terminals from basic nuts and bolts and sells them as products in their own right.

And even the processor and peripheral cabinets and chassis, storage bins and tables for terminals are bashed out of sheet metal in the company's own factory. This work was contracted out to a three-man company, but Systime bought that company last year and it has since expanded to nine people and will expand further to 20 by the end of next year.

Systime buys in peripherals, trying as far as possible to use UK sources. This means that

Gow

Data Recording Instrument supplies matrix printers and cartridge disc drives. Faster printers and bigger disc units come from Control Data and Memorex, but Systime says that 80% by value of the components of its systems are made in the UK.

Systime is now in the middle of a massive expansion which really began towards the end of 1975 with an order worth over £3 million from British Leyland for series 5000 systems for its distributors (CW, December 18, 1975). Willard describes that order as the first big breakthrough and also mentions another big order for the series 3000 from Littlewoods for word processing (CW, May 13, 1976).

During 1976 Systime brought its assembly work in-house. By the end of September last year staff numbered 147, and by September this year, the figure was 225, and in a year's time it is expected to be 340.

The factory is being expanded on all three floors and a big research and development laboratory is waiting to be fitted out.

Last year the company added Birmingham, Bristol, Glasgow and Leicester to its network of offices which was previously limited to London, Manchester and the headquarters in Leeds. It also moved into Holland through an agreement with a software house in The Hague, called Multi-function, which takes three systems a month.

The National Enterprise Board's investment is giving the company the financial strength to form subsidiaries in Holland and Germany, and it expects to attack the Belgian market from its Holland base.

Systime has also moved into the OEM market in the last year and between 25 and 30% of its output goes to systems builders.

Systime is staying level-headed about all this expansion. "We could have grown faster but we've chosen not to," says the

THE systems available from Systime start with the series 1000, which is built around the Digital Equipment PDP-11/04 processor. Prices start at £15,500, and the system can support up to 8.8 Megabytes of disc storage, a 180 characters per second matrix printer and three display terminals.

The series 3000, also based on the PDP-11/04, starts at £18,500. This system can have up to 256K bytes of memory, 1,600 Megabytes on disc, a 800 lines per minute printer, eight tape drives and eight terminals.

The series 5000, based on the PDP-11/34, starts at £26,500. Its disc capacity is eight 80 Megabyte drives and it can serve four line printers and eight tape drives.

For just over £60,000 the user can get a series 8000 with 1.3M of memory, 80 Megabytes of disc, a 400 lpm printer and six display terminals.

The new series 8000 is based on the PDP-11/80 and can support 50 terminals. Prices start at £100,000, and Systime expects this system to compete with IBM 370/138 and 370/148, offering a competitive throughput at much lower cost.

Software packages available include sales ledger, purchase ledger, nominal ledger and payroll.

Systime also has an integrated stock control system, with ledger, order entry and parts explosion systems built-in.

chairman, John Parkinson. "And when you have the chance of growing faster than is good both for you and the customer it is hard to exercise self-restraint. But we want to build up a company which will offer the same service with a turnover of £16 million as it did with a turnover of £2.8 million."

There are, at present, about 230 Systime computers installed. Parkinson estimates that about 60% are series 1000s, 25% are 5000s and the rest are 3000s. The company has just announced the 6000 at the top of the range and expects to install six during the current financial year.

Many of the users have matured from first time users to experienced people. "We're getting into more sophisticated areas now," says Parkinson. "Our first installations are now upgrading their systems. We have five users who have systems linked together and there are likely to be more as our users get more experienced."

What effect has belonging to the National Enterprise Board's Insac Data Systems had on the running of the company? "We've had no interference at all," says Parkinson. "The NEB undertakes not to get involved in the day-to-day running. There's a small restriction, that is a ceiling on the company's total borrowing of 3½ times the reserve and share capital. This gives us a borrowing potential of £1.6 million.

"As far as the £700,000 is concerned we prepare an annual operating plan and a five-year plan, and we can draw on the

Parkinson

money to carry out the plan. This year's plan was approved by the NEB with no amendments."

Managing director John Gow is impressed with Insac. "They're very keen to learn," he says, "and very quick to react. You can get a decision in principle on something in three hours: it doesn't have to go through endless committees. And the chairman is easy to get to."

It was Gow who started Systime seven years ago for DEC, doing software support in the north of England. In the days when minicomputers were regarded as nothing more than scientific machines, Gow formed Systime mainly to sell software. Company's director joined in 1972 to run an English market research and development responsibilities at DEC. He brought the sort of development expertise Systime was lacking in electronics and engineering, and the company now has ...

LETTERS

Games DP people play

I AM collecting details of computer games, interesting computer-produced pictures, etc, for a forthcoming book entitled "Directory of Computer Games". Your readers are invited to send the following details of computer games they have written, for inclusion in the directory:

1. Name of the game.
2. Synopsis of the game.
3. Programming language used.
4. Input media.
5. Machine used (core size, peripherals, operating system).
6. Any other relevant details.
7. Author's name and address.
8. Approximate price (if any).

Needless to say, all entries will be free, and the intention is that prospective buyers of games will contact the authors directly.

MICHAEL SCOTT
9 Elgar House,
Fairfax Road,
London NW6 4EX.

THE EDITOR welcomes letters commenting on subjects published in Computer Weekly, or on original topics. All letters must be accompanied by the writer's name and address, not necessarily for publication.

Micro-mania plea: No whizz-kiddery

I HAVE been reading Ivor Catt's article on microprocessors (CW, November 3). No, I'm not a very slow reader — just very busy!

I'm not sure, at the end of it, whether he is simply arguing for better designed micros or whether he is arguing for some altogether other approach.

His piece is so immensely readable in destructive mode. Could he (and CW) be prevailed upon to give us the other side of the coin, i.e. prescriptive mode?

As a simple-minded salesman, who is daily reminded that all the customer really wants to do is to solve his problems without whizz-kiddery getting in the way, I would dearly love to be told what it is that Mr Catt sees we

could really be offering the customer if we got the act right.

I have a gut-feeling that his strictures against the micro-mania are probably right, but not being the technologist, merely a horny-handed commercial pragmatist, I am in no position to shout too loudly. But if Mr Catt (and others like him) who are technically competent could show the way, then I (and others like me, not to mention the precious, money-paying customer) would create the right market demand.

BERNIE GREEN
Sales Director
Gamma Associates Ltd
Nottingham

When comparison becomes odious

ALTHOUGH my company is sometimes in direct competition with ICL, I fail to understand and appreciate why the headline "1907 was 100 times faster than a 2970" (CW, November 3), should appear on your front page.

I must congratulate Professor David Barron on producing such definitive results and diagnosis on the comparative performance of the two machines. However I think he would serve British industry, especially ICL, by helping them to solve any problems that he might have found rather than be seeking to appear on "What the papers say".

Manufacturers set up user

groups where problems such as performance can be discussed and the sadly disappearing act of co-operation between supplier and customer can survive.

As Geoffrey Reeves stated, ". . . things are getting better". I am sure if customers like Professor Barron channelled more of their energy into assisting ICL instead of "knocking" and getting front page publicity; things will get better more rapidly, and the British computer industry will find it easier to beat off foreign competition.

JOHN STEVENS
Tring,
Herts.

Option for teachers

IT is with good reason that Mr Andrew Parfitt comments that it is difficult for the teacher with little experience of computing to cope with CSE and 'O' level courses (CW, November 17).

He, and others facing this problem, may be interested to know that we have been running courses at this college to meet this need for six years. This year, we are including an option for experienced teachers to en-

able them to cope with the formidable "A" level courses in Computer Science. The course is held in June, and is "poolable", which means that the cost to the local education authority is minimal.

I should be pleased to provide further information to anyone interested.

GWYN JONES
Kesteron College,
Connah's Quay, Clwyd.

Courses for workhorses?

I READ, but with not much interest, the article on computer education by Mr Roy Atherton (CW, November 17).

Like most academics, he misses the whole point about computer education. What is needed is not training in computers, but education in data processing. Most people will come into computers in industry, government and public services where the computer is primarily used for data storage and file handling.

What should be taught in schools, and what people should be made aware of, are basic problems such as the storage and classification of data, the use of codes and keys, and the different access methods to files which are available.

All these problems have been,

and are, encountered in any system whether it be manual, part mechanised, or computer.

There are countless examples and case studies to illustrate the points, eg the way school records are kept, or further afield, how the records at the licensing authority at Swansea are organised. Education of this sort would go a long way towards dispelling the quaint belief that terms such as "access method", "file", "update" and "back up" are peculiar to computers.

Such an approach would require no hardware and would be far more profitable than teaching binary arithmetic or n programming language like Basic which has little relevance in business generally.

C. BRITTAIN
Group Systems Manager
Brockhouse Ltd
West Bromwich

Painless update guide

BUSY data processing professionals who want to update themselves fairly painlessly on what has happened in the computer industry over the past year should find the computer industry Annual Review 1977/78 useful reading.

The 90-page publication includes a five-page rundown of most of the important product developments and projects in each of the main sectors of the industry — mainframes, minicomputers, small business systems, data communications and services. Stress is placed on the continuing dominance of IBM and the ways in which it is reacting to threats to its existing markets and opening up new ones.

Facts and figures on major company developments during the year are presented in a six-page section which contains details of financial results, takeovers, reorganisations, agreements, new companies and legal wrangles.

There is also a guide to more than 60 suppliers of computer systems operating in the UK, listing the name, address and telephone number of each firm.

Computer Industry Annual Review 1977/78, 80 pp, £2. Walker-Ellis Ltd, 87 Great Eastern Street, London, EC2. Tel. 01-739 7049.

Association offers range of skills

AN ASSOCIATION of companies with expertise in services including software and data preparation, public relations, advertising, market research, staff recruitment and training has been formed to serve computer bureaux and software and hardware suppliers.

The association is co-ordinated by Sales and Marketing Services, a small operation headed by Alan Williams, who has 22 years' marketing experience, including spells with Unilever, IBM and University Computing Co.

"We want to become the Mr Fixit of the computer industry," said Williams. "I'm a great believer in expertise and the association brings together more expertise than I could set up with any amount of money. The eight companies in the association have a total of 80 staff."

Explaining the need for the association, Williams said, "When I was at UCC there was nowhere I could find the sort of services we're offering. There are very few companies, for example, doing market research for, or offering good public relations services to, the computer

industry. It's a struggle to find where they are.

Although the companies in the association do business with end user companies, the association is concentrating on suppliers only. Sales and Marketing Services has offices in London and the Midlands and most of the associate companies have offices both in London and outside. Alan Williams can be reached at Wheelwright's House, Pipe Ridware, Rugeley, Staffordshire WS15 3QL. Telephone 088922 281. The London telephone number is 01-248 5666.

DEC complex

MOST of Digital Equipment's operations at Reading are to be centralised at a new 260,000 square foot manufacturing and administrative complex on the south side of the town. It will house most of the personnel currently occupying six separate premises and should be completed by 1979. DEC has applied for outline planning permission and building should start in a few months' time.

Putting computer power where work is

By Anthony Bristow

LARGE scale number crunching using unintelligent data capture services is an unflattering, though permissible, description of electronic data processing.

Even more unflattering, though, because it's unanswerable, is the computer-knocking remark that centralised data processing departments fail to mirror their own company's organisational structure and that, in fact, long established routines have to change their operations, schedules and attitudes when a computer appears on the premises.

Distributed processing, on the other hand, puts computer power where the work is. And how to get the power of a central processing system to decentralised business locations has long exercised the skill and imagination of a significant section of the computer industry.

What has "done the trick", as so often when our industry takes a major jump ahead, is a massive cost cutting of components paralleled by significant developments in miniaturisation. In the context of distributed processing, the production of maxi-powered microcomputers so cheaply that they can be stuffed into terminals without greatly altering the price of these ubiquitous bits of hardware has transformed the latter into "intelligent devices".

Distributed processing, which is largely concerned with the use of widely scattered intelligent terminals, can thus provide remote locations with a share of computer power proportional to their needs whenever required.

Obviously, centralised DP structures painstakingly constructed over several years,

operating successfully and demonstrating real cost cutting abilities are in little danger of an imminent revamp. But there are organisations which are certainly suitable cases for distributed processing treatment: where costs and turnround are too high, and responsiveness, local flexibility and security too low.

High costs frequently occur when dumb terminals are online all day, on several lines, to a mainframe. Long turnrounds are often associated with the physical transport of documents from remote to centralised locations, for processing, and back again.

Poor responsiveness sometimes results from the need to access main files at the central location in batch mode. Flexibility is impaired by having no

inquiry or analysis features at the remote end and security is at risk if activities at the remote location depend on central computer facilities, and associated telephone lines, being in service every minute of the day.

Let's look at a typical sales order entry application to illustrate the potential benefits of a distributed data entry and processing approach.

Presume the branch office takes orders from customers and satisfies those orders from stock, held in the branch. Orders taken in a manual system, whether by telephone or by letter, will be transcribed on to standard forms on which will be recorded all relevant details. Some of these details — like the customer's name, order number, quantity and type of product ordered — will be submitted by the customer. Other information — such as the delivery and invoice address, payment terms, product description and discount — will be obtained from local references held, presumably, in some kind of filing system. Typically the product movement to which I have referred will only be triggered when all

this information has been assembled and written down on a multipart order set.

Now all this can take place quite happily without any intervention or participation of the company's computer system, which comes into the act when one part of the order set goes to the central location for punching and preparation as management information. However, the transaction has taken place without a great deal of checking as to the accuracy of the information and it has taken place with a good deal of research and manual looking-up of facts and figures.

A distributed processing system on the other hand, can, at the order-taking point, remove a great deal of clerical activity and risk of inaccuracy. Furthermore, it can provide stock level information, so that an order-taking clerk previously involved in writing a multipart set and consulting a number of reference documents, can go to a distributed processing terminal, key in a customer number and have displayed automatically, delivery and invoice addresses, payment terms and credit ratings. Equally when she enters a line item, she keys in the product code, and the price and description appear on the screen, together with the stock position, and the sales ledger and stock files are updated.

The benefit of all this is, of course, not just sheer productivity. The customer details are known to be absolutely right, his discount and credit ratings are consulted and applied, the product is correctly identified and priced, and the stock availability is apparent. A picking list can be generated locally for use in the warehouse and the delivery note and invoice can be printed at the place of work.

Other significant improvements are that the transaction is recorded and, usually, transmitted to the central computer site at the end of the day. Also, at the end of the day, a branch activity summary can be printed for local management.

The same system can be used at the time the movement actually takes place when, for example, a consignment leaves the warehouse.

For anyone considering which part of an existing manual system is to receive computer assistance, consideration should primarily be given to replacing the area responsible for most errors, since one of the principal advantages of an intelligent terminal system is weeding out mistakes before they are transmitted to mainframe.

Another important consideration is the number of transcription stages in an existing manual system. Every transcription process takes time and effort, it therefore costs money and introduces the possibility of further errors. So, a one-shot capture of data leading to the provision of operational documents will be beneficial.

There is always a need for some inquiry procedures at branch order offices. If the distributed system holds files relevant to a particular branch, expensive online inquiry facilities to mainframe, perhaps hundreds of miles away, are quite unnecessary.

Since distributed data entry and processing is a new technique there are few standards and even fewer general principles of system design. Further complicating the picture is the self-tailored nature of nearly all system applications.

However, there are a few basic check-list questions which can help avoid some of the pitfalls. Firstly, what data needs to be transmitted between the remote intelligent terminals and the host mainframe computer? Distributed processing economics is based on the idea that the remote terminal can process and store locally much of the data that, in the past, had to be sent to the mainframe for processing and storage. The more data that can be stripped off and handled locally, the riper a particular remote location is for distributed data entry and processing.

Secondly, what is likely to be the total message transmission time and the volume of data for transmission? Batch mode transmissions are far more cost effective in terms of cost per character transmitted and also allow much easier scheduling of the mainframe communication facilities to support them.

Thirdly, who will control the distributed system? Is it to be the central DP manager or the boss at the remote location? A combination of diplomacy and rational discussion suggests that the DPM must remain in overall control. However, there must be some degree of local control, simply to take advantage of local terminal programming capability. Perhaps field personnel should be allowed to write their own local application programs under close supervision from the DPM to assure standards, effective control and system integrity. I believe that most branch managers will be only too pleased to go along with what the central DPM is providing for the branches' exclusive use.

So a distributed processing system should be regarded as an extension to the group's overall facilities. For acceptance and effectiveness the system must match the profile of branch operations and be easily identified by remote location staff as a

helpful tool in their day-to-day work.

The main interface between the system and operational staff is most likely to be a VDU terminal. What appears on the screen is of crucial importance to the success of the system and it is not always the case that the screen should contain the maximum possible amount of information.

The system will usually incorporate a printer, or printers. Are the printers of an appropriate speed and, furthermore, do the printers have sufficient advanced features to make best use of that speed, such as fast skipping, bi-directional printing and so on? Will the printer be easily adaptable to use existing stationery? Does it have suitable format control and can it even be used to print in compressed characters for certain documents, both to match existing paperwork and also to save paper costs?

Moreover, it may sometimes be necessary to have more than one printer on the system so that, for example, two types of print-out can be made at the same time. Perhaps an invoice on one printer, the picking list on another. Is the local mass storage medium, usually disc, large enough to hold the data that will accumulate during the

day and also large enough to hold the various reference files that will be needed? A combination of customer and product files can easily run into a million characters of storage.

Data exchange between the distributed system and the central mainframe will normally be by communications runs in batch mode and over modems and Post Office lines. In selecting the speed of communications equipment one needs to ensure a balance between the peripheral speed capability at the distributed end and the overall time elapsed at the central end to communicate with all distributed locations. As a useful alternative to communications direct to mainframe, the distributed processing system can communicate with a similar system installed alongside the mainframe or with, perhaps, a key-to-disc system being used for central data preparation and which can have synchronous communications equipment fitted.

It is now possible to provide distributed systems so compact that 10 Megabytes of disc, 64k bytes of memory and a power processor are all in the space occupied by a standard two-drawer filing cabinet.

Software requirements of the system clearly demand some element of programmability and there are probably three sub-divisions.

Firstly, there is the need for simple formatting of layouts and field descriptions, most easily accomplished by means of a set of parameters inserted into "fill-in-the-boxes" layout sheets.

Secondly, there is a need for programmability of checks to take place in real time during terminal operations.

Finally, there is the need for programmability on a batch basis, so that the distributed system can run analysis and summary programs for use by branch management concurrently with terminal operations.

The best organisation to implement user applications is the user company itself. Total dependence on the equipment manufacturer for such applications can lead to extended implementation times. There is also the danger of inflexibility and the ability to respond to the organisation's later requirements. So in most distributed systems, I believe that user organisation management service management responsibility will assume responsibility for implementing a system, ensure that group standards are maintained throughout the organisation and that applications are compatible with central management's total needs.

"The best organisation to implement user applications is the user company itself. Total dependence on the equipment manufacturer for such applications can lead to extended implementation times."

Anthony Bristow, marketing vice-president at CMC, describes a typical distributed computing application to show the benefits of this method, and also to highlight some of the technical considerations.

Spanish electricity chiefs came to this country to see a computer system in action similar to one they hope to buy . . . at High Speed Gas. Signors José Vila (third left) and Ramon Bermuers (second left), from one of Barcelona's three electricity companies, spent two days with the East Midlands gas board at Leicester. Also in the picture is interpreter Signor Joseph Trewin (right) demonstrating a VDU and the computer department manager John Beethem.

'No access to NHS records', MPs told

INDIVIDUALS will not have the right to access information on their medical history stored on National Health Service computers. In the Commons last week the Health Minister Roland Moyle said the decision on access was a matter in which the doctor concerned would exercise his professional judgment and not one in which it would be appropriate for the government to intervene.

Moyle (Lab, Lewisham E) was answering a question from Conservative MP Andrew Bowden (Brighton, Kemptown), a supporter of the freedom of information campaign which is calling on the government to make all information generally available.

Moyle's answer endorsed the view expressed in the government White Paper on computers and privacy which said that a doctor may not always consider it to be in the patient's best interest to see the information.

Bowden said he wanted the Department of Health and Social Security to discuss with the British Medical Association the need for guidelines for doctors on the confidentiality of medical records.

He said computers had a valuable role to play in the health service but he was not satisfied with the safeguards on access to information.

Moyle added that the levels of security were decided locally but he assured Bowden that safeguards were rigorously used.

One area where computerisation should be stepped up as a top priority is that of pay-as-you-earn income tax, according to Conservative MP Kenneth

PARLIAMENTARY REPORT

Baker (Marylebone).

He said computerisation of this system would save the country money in clerical staff and would help the Chancellor of the Exchequer and the public by speeding up the introduction of tax rate changes.

Baker said he was not satisfied with a written Commons reply from the Treasury Financial Secretary, Robert Sheldon (Lab, Ashton under Lyne) who told him that a small pilot scheme in six tax offices in the Midlands and the North West was being used to test the feasibility of introducing a national system by the mid-1980s. The pilot scheme comprises 70 Raytheon Cossor display terminals linked to a Honeywell series 700 minicomputer (CW, November 4, 1976).

"There's a strong need to computerise the system as soon as possible," Baker said. "Bob Sheldon would say that every bug must be ironed out first, but I say it's better to have a system that works for 95% of cases. If we aim at 100% perfection we'll never get a system."

IBM terminals at Co-op

FOLLOWING its acceptance at Lloyds Bank, the IBM 3600 series of banking terminal equipment has now also found favour at the Co-operativa Bank, where a pilot installation of terminals of its 62 branches, probably in the Midlands.

The equipment is to be acquired is worth £400,000, but the bank is not saying which items it is

taking. The 3600 series consists of a range of back-office terminals, concentrators and other communications devices and automatic teller terminals.

All 62 branches of the bank are now online to the twin 370/135 installation in Manchester via IBM 3940 back-office terminals and Datapoint 1100 terminals running in IBM emulation mode.

Disk-o-tek first UK user

LATEST package in the range marketed by Business and Technical Systems (Bats) is a disc-space management aid, known as Disk-o-tek, for IBM 380/370 DOS installations.

Disk-o-tek allocates space economically for each file as it is opened, says Bats. It also removes the necessity for separate disc areas for programs in different partitions. Apart from saving disc space, this simplifies the job control language.

The product also includes a suite of utilities enabling files to be deleted, revived or located, and generating reports from the VTOC disc directory.

Disk-o-tek was developed by National Computing Industries, of Georgia. The first UK user is

Safeway Food Stores, with an IBM 370/135 in Aylesford, Kent. A spokesman said that the reduced disc space had meant avoiding the purchase of two extra 3348 disc cartridges.

Disk-o-tek is priced at £1,700, or £80 per month.

Wellcrox moves to Kingston

A MOVE to Kingston-upon-Thames has been announced by Wellorax, the computer bureau, from the Westfield House, Hampton Court. The company is now at 12 Canbury Park Road, Richmond Road, Kingston-upon-Thames, Surrey.

Eurologic Software, part of the Wellcrox Group, has moved to the same address.

How Varian will be integrated into Univac's mini operations

KEY decisions have now been taken on integrating the former Varian Data Machines, now Univac Mini Computer Operations, into the company's overall structure.

The division, known as MCO, will continue to be a separate element within Univac, with its own identifiable management chain, so that Univac can assess its performance and satisfy itself that the objectives served by its purchase are being met.

"However the V77 product line has just been released to Univac mainframe salesmen," Ronnie Colvin, MCO marketing, planning and support director for International Division told Computer Weekly.

"We believe in account continuity, with one salesman responsible for the whole of the customer's system, and one of the reasons for buying MCO was to ward off attacks on the Univac base from the minimakers.

"In general we are talking about add-on sales to 1100 and 90 series users, but there are cases where we can find an existing 9000 series user who might otherwise be lost to another minimaker."

There was no question of MCO losing its identity as a traditional minimaker in the same mould as Hewlett-Packard, DEC or Data General.

"because that would defeat the object of the acquisition, that of keeping Univac fully competitive within the whole market spectrum," said Colvin.

Univac bought MCO for three reasons, according to Colvin.

"The first was of course to protect the Univac base, the second was to attack other people's bases which appear to us to be vulnerable, and the third was that the company was intrigued at the success and stability of the three leading minimakers."

"We have specialised minicomputer sales forces in seven countries — the UK, France, Germany, Italy, Belgium, Holland and Australia; the Scandinavian plans are uncertain because of our relationship with Saab-Scania there whose Datasaab company also builds minis."

Manufacturing, including factory data collection and process control, is another area of interest, and Varian's acquisition of the German Krantz Computer shortly before Univac bought Varian, has given the company an entrée into the printing and publishing automation market.

These include banking, in particular communications applications such as the terminal network being implemented for Clydesdale Bank in Scotland. A major contract has also been fulfilled at the First National Bank of Chicago, where a Swift implementation and other banking applications are running on V-series minis.

The Krantz M uby line of minis has now been adopted, and the Krantz plant at Aachen and the Varian plant at Walton-on-Thames become in effect internal systems houses for MCO, with small amounts of systems assembly being done in each.

"Each will operate autonomously as a systems house," said Colvin.

The market areas being attacked by MCO have changed little from those sought by Varian: they include the OEM systems builder, experienced DP users who are perhaps entering their third five-year DP plan, and a range of specialised applications markets.

What Doctor Who will see in office of the future

By Sam Fedida

THERE are probably as many conceptions of the automated office as there are people talking about it. It is possible to look well ahead to a futuristic science fiction horizon, with robots doing all the manual work, voice-operated and responding computers and the like.

No doubt all this will one day be possible, even practicable and eventually come to pass, but it is difficult to put a definite date on the event.

Without looking too far ahead there are sufficient developments in hand or anticipated for the not too distant future to form a reasonably accurate mental picture about the office of the 1980s, and possibly that of the 1990s.

Office work is essentially to do with communicating with other people and with the processing of information, to enable meaningful communication and decision-making to take place; thus advances in information and manipulation and in communications technology will have a profound impact on the office of the future.

Four current developments, all pursued with great vigour, and attracting considerable attention and even enthusiasm from potential users will in their maturity, hopefully in the next few years, provide a solid foundation for the automated office.

Three of them are to do with new or more efficient and effective artefacts. The fourth, Viewdata, which occupies a fundamental and possibly crucial place because of its importance, is a system rather than a component.

Its importance is in the diffi-

"Office work is essentially to do with communicating with other people and with the processing of information..."

cult but tremendously exciting area of the interface — or perhaps a better word is relationship — between the man (the user) and his artefacts.

It is in fact a relationship between the user and the man who designs the system and its software for the benefit of the user, anticipating (intelligently and correctly, it is to be hoped), his needs, his thinking and his responses.

First of the artefacts is the television display. This is currently and may perhaps remain for many years to come the simplest, cheapest and most versatile means available for a machine to communicate with a human.

There is a possibility that a different kind of display technique, that is, not using cathode ray tubes, might in the next decade be developed to the point where it might be considered an effective competitor. But the probability is not very great, although it would be not wise to discount it altogether.

Television displays using cathode ray tubes have such a formidable combination of favourable attributes that the likelihood of finding an equally good replacement is rather low. They provide easy readability for viewers of all ages, alphanumeric, graphic, pictorial and colour display capabilities, a very high level of reliability, a mature technology, substantial potential for further development and low cost.

The second artefact is the microprocessor. This device is clearly only at the threshold of its development. It brings to the user an enormous amount of information processing power, in a convenient and readily available form at such a low cost that its widespread use, even for trivial, but time-consuming and otherwise labour-intensive operations, may be accepted with equanimity (indeed even welcomed).

The third artefact is the optical fibre which, used in a communication role alone, can provide an adequate medium for the transmission of large volumes of information at high speed and at reasonable cost between distant locations, from where the information is available to where it is needed.

The fourth item in the development of the automated office is Viewdata. This term is used here to convey the generic class rather than just the specific system currently being marketed by the Post Office, which has the major attributes of what is needed in the automated office.

Viewdata is the instrument that pulls together these artefacts to make the complete and many-sided automated office, in the same way that the office manager co-ordinates all the activities of the office so that each function may be performed in unison with all the others. It is also the versatile and ubiquitous office factotum who, toiling in the background, ensures that everything runs smoothly and on time, that information needed is available in the right form at the right time, who is there to advise when needed, prompt discreetly when action is required.

Viewdata can handle messages to multiple addressees such as circulars, mail shots and so on, thus taking the total mail burden off the clerical staff. Viewdata can also connect up to the Telex network, providing

recorded, then despatched. Confirmation needs to be available in some cases that it has been duly received. Mail received must be recorded, then distributed. Its whereabouts must be noted so that it may be retrieved at short notice, when needed.

Office routines must be monitored — diaries maintained, notices of meetings must be despatched in time together with appropriate documents. The preparation, despatch and collection of the appropriate documents must be carried out meticulously.

Information needed must be located, retrieved and distributed. Budgets, accounts of

A popular view of the office of the future is that it will resemble something out of Doctor Who . . . . Robots will do most of the manual jobs with voice-operated micros, etc assisting.

In the medium term, say the 1980s and 1990s, four current developments will provide solid foundations for the automated office.

Sam Fedida, head of the

quasi-infinite minutiae of often irrelevant and unnecessarily complicated detail.

This is where Viewdata has created a place for itself in the areas of information retrieval and dissemination, and of communications and information processing. Viewdata recognises that the enormous variety of tasks which humans are required to perform must of necessity be handled by a versatile language which comes as close as possible to the versatility and generality of a natural language, but without its lack of precision and ambiguity.

The principles of Viewdata in the current Post Office system are now well established, and

Post Office computer research applications division, looks at each of these artefacts and sees the Viewdata concept as the instrument for pulling the four together to make the complete and many-sided automated office.

He also predicts that Viewdata will be enhanced to provide solid foundations for the automated office.

Thus Viewdata can look after the total process of collecting, transmitting, distributing, receiving, storing and filing all mail. The local Viewdata centre provides low-cost mass storage for rarely accessed documentation and fast online random access storage, possibly in bubble memory or charge-coupled device memory, for frequently needed documents.

Note that with this arrangement files and documents are accessible not only from the office, but also from any location which has an entry point to the telecommunications network, be it wide-band optical fibre or the current speech-band telephone.

Mail preparation and processing will in many cases justify a dedicated office terminal providing off-line editing and other clerical facilities. In small offices, however, where the volume is low, online mail preparation and editing may well be more economic; the local Viewdata centre providing the necessary computer back-up. The trade-off is between communications costs and local processing costs.

Gathering management information. All management information, for example money transfers, sales, production levels, inventories and holiday rotas, could be made available instantly on a worldwide basis, using Viewdata and its international counterparts.

Data gathering of intermittent nature is probably best carried out using local intelligent terminals with some storage capabilities. As in the case of mail, the day's records are collected automatically with Viewdata and collated, analysed and stored in the appropriate file ready to be retrieved when needed.

Further processing on this data, for instance calculating moving averages, total equivalent cash value and comparison with earlier periods, may be able to carry on Viewdata and displayed graphically.

In this case also, all data may be retrieved and examined at

access to a worldwide audience using a telecommunications system already well developed.

At the receiving end, incoming mail may be deposited in the local terminal store automatically, or held in the local Viewdata computer to await retrieval. Where necessary hard copy of all or selected pieces of mail may be obtained at will, although generally it will be more economical to file all correspondence in the organisation's own computer or in the local Viewdata computer centre from where it may be retrieved when needed.

Access to worldwide databanks. Already in Europe there are more than 340 bibliographic files or databases which contain

"Viewdata is the instrument that . . . . makes the complete and many-sided automated office . . ."

references to documents from which the user may extract the information relevant to his needs, and 150 databanks which contain the direct information required.

Some databanks are supported by suites of computer programs which enable the user to carry out calculations on the data stored in the databanks.

Specialists in the use of databases and databanks are able to access these direct through various networks which have been or are being established specifically for this purpose, such as Arpanet and Euronet.

For the high level executive who may need to access these databanks frequently, the business of acquiring fluency in all these varied and complex protocols is daunting and in practice well nigh impossible. Viewdata comes to the rescue once again by providing a kind of translation service to enable the infrequent user of a databank to obtain the information he needs without difficulty. Thus a local call to the Viewdata centre will provide the executive with access to databanks worldwide and when he requires it.

A brief look at the established databanks in Europe will provide a feel for the tremendous scope of this facility. The databanks and databanks cover bibliographic references on agriculture, including tropical agriculture, aquatic sciences and fisheries, dairy science abstracts, drug to chemical abstracts, astronomy, pharmacy, metallurgy, electrical and electronic engineering, mechanical engineering, economics, medicine and information technology.

As a whole universe of information is available, executive from the home or indeed any location with access to the telecommunications network and Viewdata.

Where companies can enjoy 10 tax-free years

DID you know that a bottle of whisky costs £9.71 in Iraq and only £2.04 in Qatar? Or that the annual salary of a trained factory worker in Sudan is £594? Or that companies can operate for 10 years without paying tax in Kuwait?

These facts are culled from two books* which should make extremely useful reading for companies considering exporting to the Middle East, Africa and Asia.

The first, Middle East Costs, lists prices of accommodation, transport, utilities, food, drinks, tobacco, clothes, consumer goods, education, medical care, entertainment, business accommodation, office services, salaries and social security for 10 Middle East countries.

The other book covers taxation in the

Middle East, Ghana, Kenya, Nigeria, India, Singapore and Japan. Topics range from personal and company taxes to incentives, capital gains, depreciation and Excise duties.

* Middle East Costs, 52 pp. £10. Taxation in the Middle East, Africa and Asia, 136 pp. £12.50. Confederation of British Industry, CBI Print and Publications Department, 21 Tothill Street, London SW1H 9LP.

Japanese aim at US office market

THREE Japanese manufacturers are now preparing to enter the US office computer market. Nippon Electric has a Massachusetts subsidiary set to launch the 16-bit micro-based NEAC-100 system, Mitsubishi is almost ready to announce its Melcom line, and Toshiba is now planning to introduce its Tosbac line.

Mitsubishi marketed Melcom business systems in the UK for a short time, but pulled out because of poor response.

In Germany, 1977 is the year of the hospital automatic system for DEC. The company exhibited its KIGST-SYS medical system at the Systems 77 exhibition in Munich in October, and gave a repeat performance at the Medica 77 show in Düsseldorf a fortnight ago. KIGST-SYS was developed for Germany's Council for Data Processing, and includes a PDP-11 mini supporting up to 84 terminals. The picture shows a terminal in the clinical chemistry laboratory at the Caritas hospital in Bad Mergentheim.

Berlei leads the way in UK with a 2950

TO establish a teleprocessing network that will link its seven factories, Berlei, the bra and swimwear manufacturer, has ordered an ICL 2950. This the first UK order to be reported and the system is due to be installed next August at the company's headquarters at Slough, Middlesex.

ICL is coy about other orders in the UK but there are now seven overseas sales. In Australia the Swan Brewery, Perth, is to have a system and another order has been placed in New Zealand.

In Europe, two 2950s are to replace 1901Ts in West Germany, and a Danish publishing house in Copenhagen plans to replace its 2904 with a 2950 in 1979. Two other orders have been placed in South Africa.

The Berlei machine will be installed alongside an existing 1902T. Bob Haacke, the DP manager, told Computer Weekly, "We have order processing, sales ledger and the inquiry running online on the 1902T and these will continue."

At present there are two 7502 VDU cluster systems supporting 18 terminals at Slough and a 7181 display unit at the Merthyr

Tydfil factory, all online to the 1902T.

"We want to put terminals which can talk to the 2950 in all our seven factories," says Haacke. "We are investigating whether to have any local intelligence at the factories or do the processing here at Slough. We will only use DME/3 on the 2950 as standby for the programs on the 1902T. On the 2950 we want a total teleprocessing environment, operating on IDMS files."

The 1902T, which is expected to be in operation for another three or four years, is on seven-year lease, but Berlei plans to buy it and lease the 2950. It is estimated that the cost will be about the same in monthly payments as the 1902T is costing now.

"The 2950 is good value for money, much better than the 1900," comments Haacke.

The system will have 768-bytes of main memory, four EDS 200 disc drives, four tape drives, card reader and the new CP1 train printer. Programming will be in Cobol. Berlei is looking for development staff at all levels to work on the project.

Report predicts boom in display terminals market

ANNUAL sales of interactive display terminals in Western Europe will jump from £95 million in 1976 to £330 million by 1986, to provide vendors with a grand total of £2,121 million worth of business over the ten-year period. This is one of the main predictions made in a study* of the West European terminal market, from the US consultancy, Frost and Sullivan.
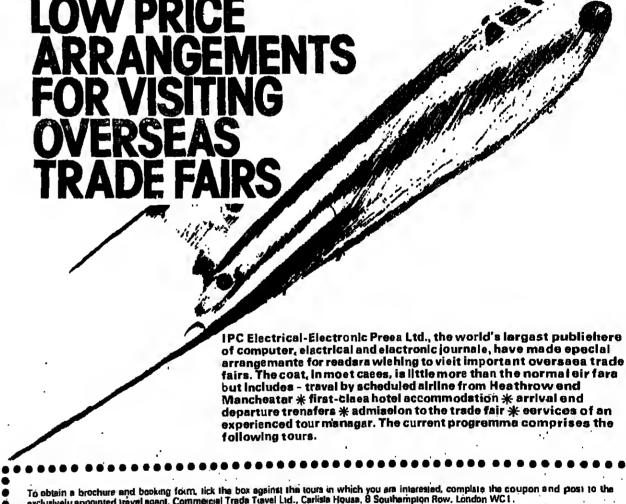
In contrast to the boom in display terminal business, sales of interactive keyboard/printer terminals are predicted to fall after 1980, from a peak of £79 million to £48 million by 1986. Sales of general purpose batch terminals will go more or less the same way. The study sees them declining from £104 million in 1980 to £93 million in 1986.

Special purpose financial terminals are seen as having a much more healthy future, with annual sales increasing from £52 million in 1976 to £72 million in 1986, but the most rapid growth

of all will be in sales of point of sale terminals.

Frost and Sullivan predicts that the non-food retail store sector of the PoS market will provide £80 million worth of business for vendors by 1986, compared with £18 million in 1976, while the value of PoS terminals sold to the supermarket sectors will leap from a mere £1 million in 1976 to £79 million by 1986.

Another area of rapid growth will be the graphic display terminals, where annual sales will increase from £8 million to £25 million over the 10-year period. Shipments of other special purpose terminals for applications like industrial data collection, credit authorisation and ticket issuing will rise from £12 million to £49 million.

*Computer Terminals in Europe, 96 pp. $750. Frost and Sullivan Ltd., 104/112 Marylebone Lane, London W1M 5FU. Tel. 01-486 8377/8.

New programs from National fill the usability gap

MICROCOMPUTER technology is forcing a much closer interface between the user and the manufacturer, according to Bill Baker, microprocessor group director for National Semiconductor, and the manufacturers must lead the way. National, therefore, has introduced two new, user oriented programs aimed at plugging the gap.

Speaking in London at the weekend, at the end of a European tour, Baker said that the National programs complemented efforts now being made in the US to produce a set of standards for microprocessors, efforts being spearheaded by the IEEE.

The first program that Baker's engineering team has produced has been called Microbus. This has established a set of definitions for the interface between a CPU chip and its supporting peripheral devices, in terms of such parameters as signal levels, timings and pin definitions. This, according to Baker, will remove a lot of uncertainty among users concerning which devices can be used

together, and how.

The second program, Silicon Software, is aimed at removing many user problems in software implementation. Based on National's Maxirom technology, which allows the construction of single chip, 64K ROMs, memories are to be made available that contain the systems support software required by the user.

The first two devices are the 8295, containing the 4K National Industrial Basic Language (Nibl) interpreter, line assembler, punch routine and editor, intended for use with National's SC/MP processors, and the 8298, containing an 8K Basic interpreter with hexadecimal debugger front end, for use with the 8080 processor family.

Already available in sample quantities, at a price of under $100, these Microbus-compatible parts will be followed by further introductions soon.

Baker indicated that other high level languages, such as Fortran and Cobol, were probable.

Predicting the decline of US dominance

OVER the next five years the US can expect a diminution in its dominance of the worldwide installed base of general purpose computer systems, and an even greater decline in its superiority in the mini and dedicated application computer systems markets. Contributing to this gradual erosion of the US stranglehold will be the aggressive Japanese computer manufacturers.

These predictions are the latest in a series developed by Frederic G. Withington, head of data processing industry forecasting at Arthur D. Little, Inc, a leading market research company of Cambridge, Massachusetts. Withington's observations were added to that of other noted US computer experts to produce a report published recently by the American Federation of Information Processing Societies, of Montvale, New Jersey.

"Information Processing in the United States: A Quantitative Summary" is in essence an update of an earlier AFIPS study containing data for 1971 and forecasts for 1976. Because the predictions in the previous study proved "reasonably accurate" according to AFIPS, the organisation is optimistic that the more recent prognostications will bear out.

In addition to ADL, two other market research firms contributed to the study, International Data Corp, of Newton, Massachusetts and Auerbach Associates, Inc, of Philadelphia, Pennsylvania. Data was also supplied by the US Department of Commerce's Domestic and International Business Administration, Commerce's National Bureau of Standards, and the US Department of Labor's Bureau of Labor Statistics.

According to Withington, general purpose computers of US manufacture accounted for 87% by value of the world's installed base in 1976 (see Figure 1). US dominance in this market is expected to decline, however, to 81% by 1981. He predicted that the US share of the overseas installed base will drop off even more sharply, from 75% in 1976 to 67% in 1981. Because installed base is a cumulative figure, heavily weighted by past sales, the reduction in American strength is expected to cause concern to US vendors.

Market dominance is particularly important to US mainframe manufacturers, which reportedly net 50% of their total revenues from overseas sales. US exports of computing equipment exceed imports by a ratio of 16 to 1, and this year will result in a net trade surplus of $2.8 thousand million. Computer technology is vital to the US as a means of offsetting costly energy imports.

Japan poses a strong competitive threat to the US industry, reasons Withington, primarily because of that nation's "integrated, export-oriented economy". Japanese companies offer complete lines of general purpose systems and devote substantial sums to research and development.

"The onslaught of Japan, Inc." says Withington, "will pose a great battle for US companies." The soothsayer is quick to add that the US will "continue to dominate the world computer market" for many moons.

Using 1974 as a base year, the Commerce Department compared the US with selected countries by calculating the portion of the gross national product represented by the installed computer base. The federal department's data indicates the US had an installed base of 163,800 systems, representing 2.3% of the US GNP, in 1974 (see Figure 2).

For the same year, corresponding figures showed Japan had 30,095 systems, equivalent to 1.2% of its GNP, the UK had 15,520 computers, or 2% of its GNP, and West Germany had 20,960 machines or 1.2% of its GNP.

Most of the AFIPS report is concerned with three topics: US suppliers of computing equipment and services, US institutional users of computers and services and personal workforce.

AFIPS points out that the amount spent by US users per capita doubled in the period from 1970 through 1975, an expenditure trend that is expected to continue during the five-year spans through 1985. Similarly, revenues of computer manufacturers and services vendors doubled in the five-year period ending in 1975, and are expected to double again by 1981.

The value of shipments of minicomputers and dedicated application systems will outpace overall shipments. According to AFIPS data, this market increased by a factor of five from 1971 through 1976, and should do so again by 1981.

While the cost/performance ratio of hardware has improved by a factor of 100 each decade since 1955, and should continue to do so for at least the next decade, the problems of software improvement have not been solved. Programmer productivity appears to be improving at only 3% per year.

The problem may be resolved, the report contends, if new technology in the software area can lessen the need for programmer training and substitute training of users in the control of intelligent terminals. The software problem, according to the AFIPS report, "is the critical path in dealing with data processing in the next decade."

GNP ($ Billions)	Installed Base Value ($ Billions)	Installed Base as % of GNP	Population (Millions of People)	Installed Base Number (Systems)	Number of Systems per Million Population
United States 1,413.2	33.6	2.3	211.9	163,800	767
Japan 459.0	5.4	1.2	109.7	30,095	274
West Germany 397.9	4.4	1.2	62.0	20,960	337
United Kingdom 173.1	3.5	2.0	56.2	15,520	276
France 282.7	2.0	1.2	52.5	13,064	249
USSR 710.6	4.5	0.6	252.1	12,500	50
USSR and 6 Eastern European Countries 655.2	5.5	0.5	356.6	15,435	43

Figure 2: Domestic installed base in relation to gross national product (GNP) and population; selected countries, 1974.

Books and Brochures

Organising databases

Data Base Organisation for Data Management by Sakti P. Ghosh. 376pp 85p. £20.65, Academic Press.

THE author's motivation for producing this book originates from his claim that there are no texts currently available on database organisation which are usable at the graduate level. While this claim may have been true when he commenced writing this book it is certainly not valid now, since there are currently several good texts available. Despite this, Ghosh's book is both interesting and different from the others that are in circulation. I am sure it will be found by many to be of substantial utility and will constitute an extremely useful addition to the library shelf.

The early part of the book is devoted to a discussion of data description models; the structure, representation and analysis of queries; searching and sorting; key to address transformation algorithms; and filing schemes for answering queries that are based upon the specification of many attributes each of which have multiple values. The latter part of the text goes on to describe the types of access paths used for the retrieval of data and then proceeds to a discussion of various techniques for organising records on drum storage.

In order to give the reader a hand with some of the quite complex mathematical concepts, Chapter 1 ("Data Structures") contains a section on mathematical topics. Although this section is helpful, it is not of sufficient depth to enable the reader to manage without other support material.

Every chapter of the book concludes with a selection of exercises and problems based upon the material covered in that chapter. Some of these are very difficult. In view of this it would have been helpful if the author had provided answers — particularly if he had intended the book to be used for teaching purposes.

In Chapter 3 ("Searching on One Field") the author states: "Human beings are searching for things all the time, but very few care to examine the basic concepts underlying searching". In my experience one of the most important aids to searching is the availability of indexes that are both accurate and as comprehensive as is possible for the subject matter that they claim to cover. Unfortunately, this cannot be said of the definitions that are contained within this book.

They are scanty, incomplete and contain several errors. For example, in the subject index there are no entries for "J", even though the body of the text makes many references to the database "join" operation. Similarly, the "I" section contains no entry for IBM, IMS or information, all of which are cited and/or defined within the text. The author index is similarly lacking in both accuracy and content. Thus, Buchholz is wrongly spelled, and the incorrect spelling is consistently used throughout the book.

There are many other spelling and typographical errors, in addition to many slight grammatical errors, the most popular of which is the omission of the indefinite article in many of the definitions that are given. For example, 'A part of a graph is called partial graph' and ' . . . logically related information which is treated as a contiguous set is referred to as segment'. There are multiple instances of this. However, these criticisms are just of the English style used. Although they reduce readability they do not seriously detract from the good computer science contained between the covers.

This is a good book and makes an important contribution to its field. It is expensive, but it contains much valuable information and many refreshing ideas. I would not recommend it to those whose mathematics is weak, or who have a fear of abstract notation. The only major negative criticisms of the book that I have are based upon the weakness of the indexes and the lack of answers to the problems that are set.

P. G. BARKER

Dangerous datanet

The Shockwave Rider by John Brunner. 288pp. 85p. Orbit paperback, Futura Publications.

RIGHT now we are laying the foundations of a world in which computing and communications have converged. But shall we be able to cope with it? Shall we want to live in it?

Being an experienced writer of SF (S for social — remember "Stand on Zanzibar" and "The Squares of the City") John Brunner is far better able than most to draw a convincing picture of a world in which most of us could be living in 35 years' time, "The Shockwave Rider" explores the social impact of a public datanet within an environment suggested by Toffler's "Future Shock". Keeping a tight rein on the technology, Brunner exposes some of the crucial questions on privacy, freedom of access to information and its deliberate misuse by the power elite. Through their impacts on the lives of his characters these questions assume more than academic interest.

In the author's US of the early 21st century (when many of us will be middle-aged) terminals, computers and database networks form the framework of the social structure. Anyone with a high enough passcode and sufficient skill can "mouse around" in the datanet to his mind's content, usually through a home terminal. A particularly fascinating concept is the "tapeworm", an autonomous packet of information that, once entered, can move around the network defending and even reproducing itself while changing the data already held in the network.

For most of the future-shocked population, the datanet is a source of anxiety. They know, for example, that an individual's credit can be frozen for months by a malicious input and that this is only one of many ways in which personal security is threatened. Indeed, recognition of a person's existence depends more upon representative information than on the individual's physical reality.

The shockwave rider of the title is a young man who has absconded from a government research institution. To avoid capture he uses his computing virtuosity periodically to rewrite his identity on the datanet. Thereafter he lives each role in detail — utopia designer, lifestyle consultant, priest and "systems rationaliser" (we could use the last right now!). At first he thrives on change, but after "overloading" (nervous breakdown) he works to render the datanet harmless, with some very interesting consequences.

The story line is rich. Brunner's wry, humour comes over in headings like "The Basic Straining Manual". His attention to detail can even run to a convincing 21st century slang (inspired, perhaps, by Burgess's "Clockwork Orange") and helps to absorb the reader into the world he portrays. Needless to say, overload is a commonplace.

I found the book highly readable and plausible enough to be quite worrying. The book's main message is clear, and we in the computer industry should take it seriously and respond to it. Criticisms? Only that the blurb on the back cover is misleading.

PAUL ELLIS

A COMPREHENSIVE brochure on a range of silencers for virtually every IBM business machine has been produced by the Power Equipment Company. It describes in detail 13 different silencers, which are said to be able to reduce noise levels by at least 70% on 28 commonly used IBM models. Copies are available from the Power Equipment Company, Kingsbury Works, Kingsbury Road, LMONDON, NW9 8UU.

A NEW British Standard, BS 5519, "Ribbons and spools used on office machines and data processing equipment" has been published. It has four parts: (1) Minimum markings to appear on containers of printing machines; (2) widths of fabric printing ribbons on spools up to 18mm wide; (3) widths of one-time paper or plastics printing ribbons up to 18mm wide and marking to indicate the end of the ribbons; and (4) characteristics of core and paper or plastics printing ribbons, BS 5519 Parts 1 to 4 price £1.20 each part, may be obtained from BSI Sales Dept 101, Pentonville Road, London N1 9ND.

Analysis of neuronal structure

Computer Analysis of Neuronal Structures, edited by Robert D. Lindsay. 210pp. $27. Computers in Biology and Medicine Series, Plenum Press, New York.

THIS book shows how progress is being made in providing a quantitative description of neuronal structures and how computer systems have been devised to assist in the work. The differing approaches by the authors are essentially application oriented, explaining the principles of the computer approaches adopted, rather than describing the computer hardware and software in detail. The book underlines the amount of numerical information required in representing the structure of a single neurone and the effort required both to represent three-dimensional neuronal-type structures and to gather meaningful statistical information about them from experimental measurements.

Computer graphics is very much a growth area of computing activity at present, and this book makes clear how such techniques may be applied to the problems encountered in the examination and representation of neuronal structures.

This work is underpinned by some very sophisticated mathematical analysis but this does not prevent the non-mathematician from reading the text easily.

The level of presentation provides a good description of progress in this field, and there are sufficient references in each chapter for the work described to be pursued in more detail. The book clearly reveals the power of computing technology when it has been harnessed satisfactorily to the problems of handling complex research situations.

B. BARBER

Practical time sharing

Computer Time Sharing, by E. C. Aylward and B. Chakraborty. 74 pp. £1.60. The Institute of Practitioners in Work Study, Organisation and Methods, 9/10 River Front, Enfield, Middlesex EN1 3TE.

THIS PRACTICAL book on programming in Basic on a time sharing service using a printer terminal has been produced for non-computer people.

It starts by showing how to use a terminal, linked to a time sharing service, as a calculator, and moves through to arrays, matrices and print formatting.

Later chapters deal with using statistical, simulation, network analysis and management information packages.

PL/C basics: scratching the surface

PL/C Essentials, by Lawrence J. Mazlack. 145pp. Soft cover £5.20. McGraw-Hill.

THIS book is intended for newcomers, not only to PL/C, but to programming. The concepts that are covered are very elementary and in many cases they are not pursued to any great depth, presumably to avoid perplexing the student and also because the material contained in the book is intended to be supplemented by a suitable lecture course.

The text is organised into 14 chapters and nine appendices. Chapter Two on flowcharts consists of just two pages which present the terminology and an example. Subsequent chapters deal with program structure, language components, list-directed I/O, expressions, GOTOs and labels, decision statements, character string manipulation using SUBSTR, LENGTH and INDEX, subscripted variables, DO groups and loops, structures, disc I/O and simple subroutine procedures. Each chapter is augmented by a series of test questions to which answers are provided; there is also a variety of suggestions and specifications for programs which the student is invited to write. No answers for these are provided.

Areas that are not covered by the text include the concept of defaults, bit string variables, label variables, user defined function procedures, begin blocks and storage types. Edit-directed I/O is relegated to an appendix. The GOTO is used extensively and the author does not attempt to present any words of caution regarding the pitfalls associated with its undisciplined use.

In the collection of appendices, there is one devoted to layout conventions and rules for indentation of source code. Unfortunately, the student who follows the suggestions found here or who mimics the style used in the many illustrative computer programs embodied within the text could well end up by detracting from, rather than enhancing, the readability of his programs.

Appendix G (14 pages) consists of a listing of all the PL/C error codes and messages; their inclusion is unnecessary since this information is provided routinely by the PL/C compiler. Likewise, there is an appendix devoted to the use of the card punch which could have been omitted. As most programmers, particularly beginners, spend a great deal of their time debugging their programs, it was disappointing to find that Appendix B ("Debugging") consisted of only three pages that described desk-checking and the PL/C CHECK prefix. Nothing was mentioned about the use of PUT DATA, FLOW, etc or the use of the many aids provided by the compiler such as the dynamic flow trace, dump of active blocks and scalar automatics at program termination, etc.

The book contains some useful ideas and is quite well produced. It is free of typographical errors and contains lots of nicely reproduced listings of program source code designed to illustrate the various concepts presented. Unfortunately, its approach is of the "pre-structured programming" era. While it would make a useful text for those studying computing as an ancillary subject, specialists would not find it of interest, since it does not go into the topics it covers in sufficient depth. Indeed, it is a pity that this book only scratches the surface of PL/C, as there are many fascinating and interesting facets of the system which are left uncovered.

PHILIP BARKER

Algorithmic languages

Methods of Algorithmic language Implementation: No 47 In the Lecture Notes in Computer Science series, edited by A. Ershov, and C. H. A. Koster. 35tpp. Softcover DM31, US $3.70. Springer-Verlag.

THE papers included here are all from the Symposium on Methods for the Implementation of Algorithmic Languages held at Novosibirsk in the USSR in September 1975. Their standard is very mixed: some deeply theoretical, some practically instructive, some giving only background information and status reports of projects; a few of them are highly readable (for example, Lecarme's paper describing a portable Pascal compiler), though rather more are totally opaque (for example, I. V. Velbitsky's paper on the formal definition of programming language assemblies). This opacity arises in part from the double load of translation: some of the papers have had to bear — firstly into Russian, and thence into English.

The subject matter ranges across the abstract properties of grammars, the representation of semantics at various levels while a little more than a compiler or compiler-writing system, data-structures, macros and pragmatic points of compiler design. According to Koster's preface, they give a series of case studies, reasonably balanced impression of the state of the art in compiler writing in Eastern European countries, and it would seem that the software techniques there employed are very bit as advanced as in Western Europe.

The papers most to be recommended may well commend themselves as being the most readable: Lecarme's (mentioned above); "On the macro extension of programming languages," by V. Sh. Kaufman, which contains a neat formalisation of what is already known about macros; and "Pragmatica in compiler production system" by Jan Borowiec.

This is not a book to be read cover to cover, any more than one would read, say, the Journal of the ACM cover to cover. It is, however, a book to be recommended to university departments, and compiler-construction experts in industry. It is to be hoped that everything which is original here will eventually be presented at some time in the future more clearly and more accessibly.

IAN D. K. KELLY

Portability

Software portability, an advanced course, ed. P. J. Brown 342pp. £7. Cambridge University Press.

LITTLE more need be said on the subject of software portability. The names of the main contributors — Brown, Griffiths, Griswold, Lawson, Niblett, Richards, Waite, Wilkinson — guarantee the qualities of this book, which is based on an advanced course given at the University of Kent early this year. It would be suitable for a postgraduate course or for undergraduate project work. It is of little more than a little heavy for businessmen.

The areas covered are theory, methods, practical problems and legal aspects. These are followed by a series of case studies reasonably balanced impression of the state of the field and future developments and discussion of, EEC, and

CNRS/SRC work.

Some of the material is widely available elsewhere: for example, that on Snobol 4 and the Nag library. Some of the chapters are rather out of date and do not seem to relate very closely to the subject in hand. But some are particularly useful: those by Wickman, Niblett (the second one) and Frank for example.

My main reservations about this book are part of my reservations about computer science in general. The characteristics of computer languages, in particular their incompatibility, arise largely from historical accident and commercial policies (or lack of). To bring to bear on such a subject an intellectual endeavour strikes me as being possibly exaggerated.

BEVERLEY ROWE

Location of Installed Base	% of Installed Base Provided by U.S. firms	
	1976 Estimate	1981 Forecast
United States	100	97
Canada	95	87
Western Europe	85	78
Eastern Europe	5	13
Japan	44	43
Others	85	
Overseas	75	67
World	87	81

Figure 1: Installed base from US Computer Firms (% total value) in selected countries, Overseas World, 1976, 1981 (excluding military and specialised application systems).

Midlands always in need of skilled staff

By Cathy Tracey

THE demand for skilled data processing professionals in the Midlands area is still running at a substantial level. The emphasis, as ever, lies in a requirement for more junior programmers and analyst/programmers with up to three years' high-level commercial language experience, for technicians with solid advanced areas — for example, database languages, and people who have worked on teleprocessing monitors, etc — and for mature analysts with good investigation, design and implementation experience with an emphasis on manufacturing-based systems.

The salary situation remains somewhat confused. Much of central Midlands industry consists of subsidiaries of large conglomerates often engaged in industries associated with, for example, the motor industry, or light/medium engineering. As major and responsible employers, these companies have, for the most part, strictly followed the government's pay guidelines.

Though offering a challenging and dynamic environment, job satisfaction and, from a career standpoint, a sound and relevant future to computer professionals, many have found themselves considerably behind market rates for computer appointments when compared with those organisations that have followed guidelines less closely, and when compared specifically with local government, freelance openings and those organisations which have been able to respond more effectively, in monetary terms, to the overall increase in salary scales within the computer disciplines.

In addition to the vast array of interesting projects and large scale investment which continues to be made in both systems development and hardware, the Midlands offers the unusual combination of the attractions of city living, with easy access to more rural surroundings.

Compared, particularly, with the South of England, the cost of housing, be it rented or bought, the cost of transportation, and the overall cost of living are significantly lower. The general economic situation is improving, and manufacturing industry alone has created 6,000 more jobs in the last few months, many in the DP field.

There is considerable activity on the hardware sales front, though few organisations maintain any sizeable centralised, or head-quartered operations in the Midlands. Professional sales and marketing people, as always, are difficult to find if they are working at a territory sales or territory sales management level, and a considerable number of opportunities are open to them at this time.

In summary, the Midlands offers the combination of an attractive living environment, coupled with substantial opportunity in progressive computer sites against a background of realistic salary scales. In spite of emotive articles in a number of computer journals in recent weeks, for the mature and substantial employer, salary scales remain, largely, regularised and controlled, and continue to follow the pattern of other professions, rather than to have exerted on the salary market as a whole their own unique influence.

The Midlands has always been a breeding ground for good, skilled people. The DP field is no exception, and I believe will continue to be so in the future.

> The Midlands offers the unusual combination of the attractions of city living, with easy access to more rural surroundings. With the cost of living significantly lower than in the South of England, it has always been a breeding ground for skilled people — and the DP field is no exception, says CATHY TRACEY, Midlands regional manager of Specialist Computer Recruitment Ltd at Birmingham.

Project Leaders
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United Glass Limited manufactures a large range of glass, plastic and metal products at its factories throughout England and Scotland. To cater for the Company's needs the Group Management Services Department operates an IBM 370/138 running under OS/VS1 and a rapidly expanding network of Datapoint 2200 and 5500 mini-computers. The applications include Production Reporting, Pensions, Personnel, Payroll, Stock Recording and a large number of sales and financial systems.

The Department operates on a bureau/consultancy basis and is divided into multi-disciplined project teams servicing the central functions and operating divisions of the Company. There is considerable pressure on the Department to provide a professional solution to a wide range of business problems. It is, therefore, essential that Analysts and Programmers are technically competent and able to work within cost and time budgets. To service the Company's needs we are looking for the following people:—

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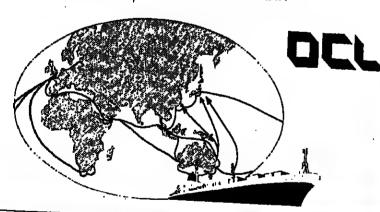
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PRODUCT NOTES

THE SALES BIT

Paper shredding unit

A PAPER shredding unit, the Model CC9, which cuts across the paper as well as parallel with its length is now available from Ofrex Ltd of London.

The CC9 produces 1 mm × 10 mm paper chips which, according to Ofrex, ensures security of all discarded documents.

The CC9 has been added to the existing Ofrex Fordigraph shredder range and is a development of the Fordishred 9 which employs parallel cutting only.

According to Ofrex, the design of the CC9 eliminates the overheating problems previously associated with cross cut shredders.

Other CC9 features include a 218 mm (8½ inch) throat which can accept five or six A4 sheets in one pass when working at a rate of 60 feet of paper per minute. The maximum speed is 98 feet (13.3 metres), per minute.

The CC9 is a table top unit weighing 39.8 Kg (140 lbs) and measuring 446 mm (17½ inches) wide, 453 mm (18 inches) deep and 223 mm (8¾ inches) high. It can be supplied with its own mobile trolley.

The CC9 is operated by a two-way forward and reverse switch and automatic overload cut out is a standard feature. Shreds are ejected into a large capacity plastic sack.
Ofrex Ltd (CW), Ofrex House, Stephen Street, London, W1A 1EA. Tel: 01-636 3686.

Disc system

NOW available from Mogul Electronics is the Cosmac floppy disc system (FDS) which is a mass-memory storage unit designed to be used in conjunction with the CDP1800D4 Cosmac development system (CDS) in order to facilitate rapid program development.

Enabling significant reductions in program development times compared with other systems the FDS can, for example, permit the assembly of a 1K byte program in 10 minutes compared to a time of one hour with a 10 chps paper tape system, claimed Mogul.

It consists of a dual disc drive mechanism, interface card and ROM set that contains a disc utility and monitor program together with a system diskette which holds the assembler, editor, diagnostics, tape to diskette transfer, diskette copy, memory save and demonstration programs.
Mogul Electronics Ltd (CW), 273 High Street, Epping, Essex, CM16 4DA. Tel: Epping (78) 77366.

Recorder

IN the wake of its Model 715 low cost data cassette recorder, MS Instruments has introduced a remote control version. Named Model 710, it has standard piano key type switches with which to manually instigate "stop", "read", "write", "fast forward" or "reverse" functions together with a welded facility in the read and write modes of remote start and stop. This is done via a teletype signal.

A "busy" signal is also available which inhibits data being admitted or transmitted until the recorder has attained its normal operating speed.

Capable of being connected via the normal Teletype, CCITT V24 or 5V TTL logic interfaces provided by computer manufacturers, the Model 710 utilises either standard, audio or 300 free computer grade cassettes — both having bracketed lugs for overwrite protection.

The maximum data rate is said to be 240 baud and the Model 710, Easy, £490, London in one-off quantities with delivery dates being four weeks from the receipt of orders.
MS Instruments Ltd (CW), Rowden Road, Beckenham, Kent. BR3 4NA. Tel: 01-650 7806.

Recruiting through an agency

FOR many sales managers the use of recruitment agencies has effectively become a reflex action. To real consideration is given to alternative methods of personnel location and there is no formal justification for the significant cost which is implied by each recruitment exercise using this medium.

The question must be asked, what can a recruitment agency do and/or what does it have available that one could not do better or make available oneself?

It is not simply a matter of deciding whether or not to utilise the services of a recruitment agency; by far the more important question is, which one?

A truly effective agency for the recruitment of sales and marketing personnel must have the resources to provide management with the following facilities/benefits:
1. better utilisation of time/resources;
2. details of currently available candidates;
3. advertising at reduced prices;
4. creation and co-ordination of recruitment campaigns;
5. integration of advertising with company-wide public relations activity;
6. in-depth experience of sales management and selling within the computer industry; and
7. meaningful knowledge of the marketplace related to a particular job assignment.

Most recruitment agencies can satisfy the demands of the first four items, but when it comes to the location and selection of sales and marketing personnel there are very few organisations who are equipped to offer such a comprehensive service.

I cannot think of more than four agencies who might attend a chance of meeting this qualification. So how do you discover which is which?

In my opinion the best approach is to invite a selection of those agencies purporting to be involved in recruiting salesmen to discuss your business situation and discover what real experience they have of knowing what salesmen look like and what reel knowledge they have of your marketplace.

Those who convince you that they would do the job at least as well as you, should be given a thorough understanding of the company's aims and marketing strategy and be retained for ongoing staff requirements.

There are basically three forms of recruitment:
Agency: Where records of known, "live" candidates are matched with "job orders." The initial action is taken by the salesman who makes known his desire to change jobs. He is asked to complete a job application form and not subjected to a face-to-face interview by an appropriate consultant who is responsible for producing a formal written evaluation but not putting him into the context of a particular job or company.

His capability is then matched with the requirements of existing job-assignments, and if necessary, appropriate potential employers are also approached.

Typical charges for this type of service vary from 15% to 20% of the salesman's guaranteed income for the first year of employment, depending on the level of income involved.

Advertising: where the appropriate advertisement is created, response is filtered and "long-list" applicants interviewed so that the client's first involvement after the initiation stage is the interviewing of "short-list" candidates.

Typical charges for this service are similar to agency fees, but also include the cost of advertising, artwork, the production of printing plates and other related expenses.

"Head-hunting": This method of recruiting is obvious, but it is usually limited to clearly identifiable people in very specific jobs. Consequently, salesmen are seldom involved in this approach, it is more typically senior management and specialist technicians.

Charges can range from 25% to (I have heard it said!) over 50% of the first year's basic salary.

Some agencies will give either a refund or a free-replacement in circumstances where a candidate leaves his job soon after joining. This "guaranteed" period is typically between one to three months.

For the first few weeks it is difficult for the sales manager to know if his newly acquired salesman is a good buy or a goodbye.

However, if he's got his counselling and appraisal right he should soon see the early warning signs of the misfit.

He should also be aware of the implications of the Employment Protection Act.

In other words the period of evaluation should be a maximum of three months.

My reaction is that total refunds and free-replacement is too extreme. I would much rather see a sliding scale of compensation which keeps the pressure on both the sales manager and the recruitment agency to "get it right". Say, 75% within the first month, 50% within the second and 25% within the third.

TRADER

Puzzle answer